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TRANSACTIONS

OF THE

ILLINOIS STATE ACADEMY OF SCIENCE

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OF THE

ILLINOIS STATE ACADEMY OF SCIENCE

VOLUME XXIV

1931-1932

EDITED BY DOROTHY L. ROSE

Printed by authority of the State of Illinois

DEPARTMENT OF REGISTRATION AND EDUCATION

SPRINGFIELD, ILLINOIS

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VOLUME 24 SEPTEMBER, 1931 NUMBER 1

Papers Presented in General Sessions
Minutes of Council Meetings
Constitution and By-Laws
List of Members
Memoirs

EDITED BY DOROTHY E. ROSE

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DEPARTMENT OF REGISTRATION AND EDUCATION
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PAPERS PRESENTED IN GENERAL SESSIONS AT THE TWENTY-FOURTH ANNUAL MEETING IN PEORIA

RESEARCH, ITS OPPORTUNITIES AND REWARDS*

BY

FRED R. JELLIFF

Taking Research as including experimentation, exploration, and invention, one is justified, from a survey of its many activities, in terming it an occupation that gives employment to tens of thousands while its results furnish gainful work to millions.

Our government is, I believe, the largest single research institution in the world. Several of its departments might be termed extension schools for the diffusion of knowledge. The Department of Agriculture alone carried on last year one hundred seventeen lines of investigation, covering various phases of science and employing twenty-six thousand persons, five thousand of whom were actively engaged in research. In addition there were four thousand county agricultural, home demonstration, and club agents, four hundred supervisory officers, and one thousand two hundred extension specialists. A topographic force, a water resource branch, co-operating in thirty-four states, the conservation branch, all have scientific forces. C. W. Washburton says: "Every state in the Union has its college of agriculture and its extension service and its state agricultural department." To all these the department is giving freely its stores of research information. Under this system every farm bureau agent becomes an employee of the government and every farm organization benefits. Another consequence is that four thousand high schools in the forty-eight states have departments of vocational education with an enrollment of nearly one hundred twenty-five thousand and receive the benefits of combined research. In Illinois ninety-five farm bureau advisers contribute their quota to sixty thousand members.

Last year the Department of War carried on nine hundred thirty projects, including fifty canals and waterways. Flood control and great waterway projects demand the most careful and exacting study by army engineers.

* Address of the Retiring President, read before the General Session, May 8, 1931.

The Interior Department has just established a Board of Education and Research for the national parks and monuments. In the department are such bureaus as the Reclamation and the Geological Survey, including large forces of scientists and employing research at many points. Thirty states benefited last year by the work of the survey and one can scarcely compute the value of the resources that it brought to light.

In the Department of Commerce are four research divisions and through its Bureau of Standards it operates an associate plan in research. The bureau's advisory committee represents fourteen national associations with twenty-four other groups cooperating. Ninety-six research associates are maintained at the bureau by forty-one separate organizations. In the aeronautic branch alone sixty lines of research were prosecuted last year. In all the activities of the bureau a large, thoroughly trained personnel is employed. Last year its patent office issued forty-five thousand two hundred forty-three patents, not including designs and reissues, disclosing that over forty-five thousand of our citizens, many of them not of college or university standing, had through study and concentration succeeded in creating something new and perhaps better than what had heretofore been used.

Research in Illinois

All the forty-eight states are carrying on research work. In Illinois the State Museum, the Natural History Survey, the Water Survey, the State Geological Survey, the Agricultural Department with its several divisions, the Department of Conservation, the Public Works Department with its flood relief, waterway, and road problems furnish fields for scientific investigation. Our Geological Survey in addition to its field and topographical work, has, very much to its credit, instituted field trips for teachers. Coming from many industrial leaders is a request for an intensive investigation by the Survey of the mineral resources of Illinois, and this is something that this Academy should heartily approve. All these fields require men competent to undertake research.

Seconding every effort of the State is our State University. The Agricultural Experiment Station alone, last year had two hundred eighty research projects under way. In Agronomy, in Railway Engineering—a recent achievement of which may save the railways $25,000,000 annually—in the sciences, and in many other lines the work is of a practical nature and through many publications the facts are given to the people.

Twenty-six other universities and colleges and the five Normal schools of Illinois are contributing their share. Chicago University has been an outstanding center of research and so has Northwestern and both have to their credit for the year a notable number of achievements. The aggregate of what the others have done is large. On the faculties of the four leading universities of the State are approximately three thousand instructors and they ministered last year to thirty-seven thousand eight hundred students. Seven hundred high schools in Illinois have science courses in greater or less degree, many of which vie with the colleges in their excellent equipment. Add to our educational agencies, the many private citizens interested in science and the several scientific associations and one comes to realize that a great upward movement is in progress. At the last meeting of this Academy one hundred twenty research papers were presented representing much patient and painstaking original investigation.

Industrial Research

As significant as any of the scientific movements of the day is that of Industrial Research, disclosing that our corporations are thoroughly aware that in it there are great possibilities. The National Council of Research reports that in 1920, three hundred industrial concerns had research departments; in 1925, five hundred twenty-six; in 1927, one thousand; and early in 1931, one thousand six hundred twenty-five. Many corporations did not answer the queries; others gave only the heads of departments, and some added the expression "and others," so that the total of twenty thousand engaged even in the research departments reporting is only a partial figure. Only a few of the great railroad companies, which maintain staffs, made returns; nor does the total include the laboratories of the Federal, State, or Municipal governments, or those of educational institutions, the great scope of whose work we have already indicated. Holland, in his work on Industrial Explorers, estimated that in 1928 in the industrial research laboratories thirty thousand were kept employed at a daily expense of $500,000. The Bell Telephone Company alone enrolls three thousand in its research activities. In 1930 approximately nine hundred were employed by the rubber products corporations of one city. In the various Du Pont industries over one thousand five hundred; in the General Electric over one thousand three hundred; in the International Harvester over six hundred, in the General Motors, four hundred forty-five; in the Standard Oil, five hundred; in the Westinghouse, five hundred; and in the Ford plants one hundred fifty technical men, mostly chemists, and a large force of assistants were employed. Over two thousand

research directors head these departments, which are handling four hundred thirty different products.

In addition the Bureau of Standards lists two hundred seventy-one commercial testing laboratories, and one hundred eighty-six college laboratories doing more or less research work.

The National Council of Research reports one hundred seventy-five industrial laboratories in thirty-six Illinois cities with a personnel of over two thousand three hundred. In Chicago alone there are one hundred fifteen laboratories and they are doing a wonderful work. In all our states is this effort in progress.

Research Organizations

Of institutions devoted to research we have a noble group. One might mention the Smithsonian Institution, the Rockefeller Institute for Medical Research, the Franklin Institute, the Bartol Research Foundation, the Arkwright Research Foundation, the Carnegie Institution carrying on forty lines of research, the National Research Council with a membership of accredited representatives of seventy-five national and technical societies, with its eleven major divisions, its fellowships, its careful selection of men for specific purposes, its co-operative activities and its encouragement of a high order of ability in research, and the Mellon Institute with one hundred forty-two fellowships in operation and linked with great industries. One could start with the Massachusetts Institute of Technology and go across the country to the California Institute of Technology, of late so much in the public eye, and find the country between dotted with research inspiring institutions. In medicine and surgery he would find such great hospitals as Mayos and John Hopkins and others of marked eminence and usefulness, the total number of hospitals for the country being close to six thousand seven hundred.

The National Academy of Science, the American Association for the Advancement of Science with its membership drawn from twenty-five state academies and fifteen other scientific organizations, the American Chemical Association with its membership of many thousands, and numerous other scientific organizations, some eighty in all, furnish incentives and opportunity for research workers while the papers and discussions tend to personal and public enlightment.

In the realm of engineering and architecture there is an ever expanding field. The $30,000,000 bridge over the Golden Gate; the $120,000,000 water supply project for San Francisco; the Liberty Bridge across The Narrows of New York harbor; the $4,000,000 dam

for Seattle's power enterprise; the gas pipe extensions from the southwest to large cities; the tunnels through mountains and under rivers; the long subways in crowded cities; the immense, towering blocks, like the Empire State Building of New York City; the great water supply and sanitary drainage problems; the creation and equipping of magnificent power plants; projects like the Hoover Dam; the gridironing of the country with hard roads; the intensive study of all construction material; all these and many other modern enterprises call for preliminary research and a comprehensiveness of technical knowledge never before equalled. The searchlight has been turned on our homes. We predict that one hundred years from now people will smile at our present day homes. Dr. Comstock announces a new method for cooling homes; windows may be omitted and electric sunlight used; there will be more perfect ventilation. Dr. Abbott may make sun cooking practical; the sun's heat may be stored for warming homes; building material will be fire-proof.

The World, the Field

The world is the field. Last year one hundred twenty-five expeditions went from this country, including altogether a large and courageous personnel of scientists. Great dangers and hardships attended many of these, as that of Byrd to the South Pole or of Andrews to the wilds of Asia. Their contributions to knowledge transcend estimate. At the same time there were scores of expeditions to parts of our own country under the auspices of colleges and universities. Think of Princeton's eleven thousand mile geological trip!

Among the institutions that are promoting research are the great museums. A dozen of these are justly famous. We are all proud of the record of Field's which last year carried on some twenty-six lines of research and extol that of the American Museum of Natural History which reported thirty-four enterprises. Scores of our cities maintain laboratories some of which are on a large and elaborate scale.

Also as promoters of research one must include the newspapers and magazines. Of great merit is the work done by the National Geographic and a host of scientific periodicals. Impetus is given by our great observatories, some fourteen in number, several of which are provided with the largest telescopes and the most perfect equipment in the world.

There is no standing still. Yale college has a gift of $500,000 for a research project; in Florida, Harvard is establishing a School of Geography; there is the Bamburger and Field gift of $5,000,000 for a

School of Research; Shedd's beautiful aquarium in Chicago, costing $3,000,000 is completed; Purdue has ordered a research foundation; the Rockefeller Institute has a new laboratory; the Duke Forest in Florida is dedicated to research; Mrs. Walter Graeme Ladd creates a $50,000,000 foundation for medical research; Ford establishes an industrial university; Julius Rosenwald donates $2,000,000 to the Chicago Academy of Science and Industry; Colgate adds the McGregor Hall of Chemistry; Cincinnati is to have a million dollar research food foundation; the Cleveland Museum undertakes an arboretum; Brooklyn's Medical Center will cost $100,000,000; Scripps Institution has a new $120,000 Ocean Laboratory; Cornell is adding a million dollar Science Building; a new research building for Mellon Institute is announced; a $5,000,000 hospital features Northwestern's year; a $2,000,000 Science Building for the University of California is completed; Chicago University possesses two new science structures; and in fact last year in gifts $100,000,000 was spread among one hundred seventy-two universities and colleges to enlarge their opportunities of service.

The Rewards

I have tried to visualize the field and its opportunities. Is it worth the while? There are financial benefits and they are not to be despised. There are awards one of which—that of the Popular Science Monthly—carries $10,000; there are the Salem Memorial of $2,500; the $1,000 award of the American Association for the Advancement of Science; and other prizes that betoken appreciation. Medals of distinction are bestowed. Dr. Karl Landsteiner wins the Nobel prize; Dr. C. W. Tombaugh achieves a British astronomical medal; Dr. Otto Folin is awarded the Scheele medal; Dr. J. A. L. Waddell is given the Clausen gold medal; the French Academy admits Dr. J. H. Breasted. There are fellowships in research institutions; honors from colleges and universities that create possibilities of greater service; there are leaves of absence and many grants, there are degrees that symbolize achievement and there are fame and grateful recognition for those who succeed.

A Growing Occupation

I am merely presenting a picture of a growing and ennobling occupation whose doors are swinging open to the nine hundred twenty thousand students in our approximately six hundred universities and colleges, to the students in the one hundred fifteen Normal schools and two hundred sixty junior colleges and to our several millions of high

school pupils. They need no longer follow Horace Greeley's advice: "Go west young man, go west," but many of them may qualify themselves for research opportunities.

We are still ignorant; the best is before us. The combination of brain and hand signifies advancement. Millikan says creation is constantly in progress in the infinite spaces; Hart says that a high intelligence is perceptible throughout the universe; Eddington says that the spiritual element in our experiences is our creative element; Boyd practically says that research is a creator of employment. Accomplishment is the end and reward of research.

I hope that the time will come when our government will establish not merely medal rewards, but substantial money prizes to be given annually to Americans who have made the most noteworthy and valuable research contributions, and that present limitations on the time of ardent research workers will be removed.

I have reason to believe that a bill establishing such awards will be introduced by an Illinois member at the next session of Congress, and I trust that this organization will be the first to approve it, not from any selfish motive, but as a grateful recognition of a great service rendered.

CHEMICAL MESSENGERS—A SPECIAL CONSIDERATION

Those Known to Play a Direct Rôle in Digestion

BY

A. C. Ivy

Northwestern University Medical School, Chicago

In the realm of physics we may look upon heat, light, sound, and electricity as *physical messengers.* They may be produced at a certain point and through the agency of an appropriate transmitting medium may be conducted to a distant point to produce an effect. In the realm of biology, we know that a specialized group of cells may produce a specific organic substance that is transmitted by the blood or lymph to distant cell groups or organs to produce a specific reaction in them. Biologists refer to this group of substances as *chemical messengers.* Technically they are referred to as internal secretions or autocoids (self-remedy). The glands or group of cells that form them are called glands of internal secretion or endocrine glands (separate within). If the autocoid or internal secretion has a stimulating action, it is called a hormone (to excite). If it has a depressing action, it is called a chalone (to inhibit).

This biological concept is not old. The expression "internal secretion" was first used by Claude Bernard in 1857. He used the term to describe the sugar which is passed into the blood by the liver cells, although now we use the term in a more restricted sense. Brown-Sequard in 1889 was the first scientist to test out and to give an impetus to the idea that a chemical messenger might be stored in a tissue and hence might be extractable and available as a therapeutic agent. In the same year V. Mering and Minkowski found that extirpation of the pancreas would result in experimental diabetes and were the first to excite the interest of physiologists in extirpation experiments, although Schiff in 1884 had described convulsive seizures following removal of the parathyroid glands and Brown-Sequard had attempted to extirpate the adrenals in 1856. Although much pioneer work had been done prior to the year 1902, it was not until this date that the terms chemical messenger (1902) and hormone (Starling, 1906) were coined by Bayliss and Starling.

The exact mechanism by which the chemical messengers or autocoids act is not known. But it is known that they regulate and govern

not only many different types of physiological activity but also morphological development. Some play a vital rôle; others do not.

As our information in regard to the endocrine glands increases, it becomes more evident that the number of active principles or internal secretions is greater than was formerly suspected and that an interrelation exists between them.

I shall list the effects of the anterior lobe of the hypophysis as an example of the diverse action that some of these glands have. Experiments on animals have shown that the anterior lobe has the following distinct effects: (1) stimulation of growth, (2) stimulation of gonad development and ripening of ovarian follicles, (3) stimulation of the lutein cells, which prevents ovulation, (4) stimulation of metabolism by increasing the specific dynamic action of foods, (5) stimulation of the thyroid, prevents thyroid atrophy, (6) stimulation of lactation, (7) initiation of the bleeding of menstruation.

Through the use of chemical methods and procedures, a number of these autocoids are now available for therapeutic purposes. Thyroxin, the active principle of the thyroid, and epinephrine, the active principle of the medulla of the adrenals have been crystalized and synthesized. Insulin, the active principle of the islet cells of the pancreas, and estrin, the active principle of the follicular fluid of the ovaries, have been crystalized. Oxytocin and vaso-pressin of the post-lobe of the hypophysis, parathormone of the parathyroids, emmenin of the placenta, prolan of the anterior lobe, cortin of the adrenal cortex, gastrin, secretin and cholecystokinin, the hormones of the gastro-intestinal tract, and possibly others have been sufficiently "purified" to use in man and animals without producing marked toxic reactions.

The author and his colleagues have been primarily interested in the physiological proof of the existence of hormones related to the activity of the digestive organs and the chemical isolation of these hormones.

In order to prove the existence of a hormone, it is not sufficient to show that an extract of a certain tissue yields a principle which has certain pharmacological actions. One of the other required points of evidence is that it must be shown that the active principle actually gets into the blood or lymph under physiological conditions in sufficient amounts to produce an effect. For this purpose a number of methods are available. The methods which have served us effectively in our work in demonstrating the existence of hormones which excite the digestive organs, are (1) the method of cross-circulation and (2) the method of transplantation.

I shall tell you first of our work on gastrin, the hormone that is concerned in causing the gastric glands to secrete.

A number of years ago (1903) Edkins made an extract of the pyloric gastric mucosa which when injected into cats or dogs stimulated gastric secretion. He called the active principle gastrin. Subsequently a number of workers showed that such an active principle could be extracted from a number of other tissues and even plants, a fact that was interpreted as discrediting the gastrin theory of Edkins. However, several years ago, Ivy and Farrell transplanted a small pouch of the stomach subcutaneously and found that when the animal was fed, the transplanted gastric pouch secreted acid gastric juice. This observation which has been confirmed by others shows that when the animal eats, something enters the blood which excites the gastric glands. This something may be either the hormone gastrin or substances which the physiologist calls secretagogues and which are present in food or result from the digestion of food. Quite recently, however, Ivy and Kim have shown that a solution containing potent secretagogues may be injected intravenously at a timed rate without exciting gastric secretion. This we believe proves that the active principle circulating in the blood after eating is the hormone gastrin. Further, we (Sacks, Burgess, Ivy and Vandolah) have been working on the chemistry of gastrin and believe that it is histamine. This is a significant and pertinent statement, because some have thought that the "gastrin effect" was due to histamine, a non-specific substance. Our experiments indicate that histamine has a specific relation to gastro-intestinal physiology.

Bayliss and Starling coined the word *chemical messenger* and later Starling created the word *hormone,* as a result of their discovery of secretin. Secretin is a hormone that is produced by the mucosa of the upper intestine and on being carried to the pancreas by the blood causes it to secrete pancreatic juice. Bayliss and Starling found (1) that dilute acid applied to the duodenum caused the pancreas to secrete even after they had attempted to sever its nerve supply, and (2) that extracts of the duodenal mucosa when injected would cause the pancreas to secrete. They advanced what is known in the texts as the "secretin theory" of pancreatic secretion. Subsequently this theory was argued pro and con by experimentors. Several years ago, Ivy, Farrell, and Lueth transplanted the tail or a portion of the pancreas subcutaneously and found that when the animal ingested a meal the pancreatic transplant was stimulated to secrete. They then transplanted two loops of small intestine (jejunum) under the skin in an animal with a pancreatic transplant and found that the application of dilute hydrochloric acid or gastric juice to the transplanted intestine caused

the transplanted pancreas to secrete. This procedure ruled out a secretagogue action, inasmuch as acid intravenously was ineffective, and showed that a hormone was elaborated when the acid came into contact with the intestinal mucosa. Further, it has been shown that when the blood of a fed animal is vivi-dialyzed, an excitant of pancreatic secretion is obtained in the dialysate (Lim and Necheles). We have shown recently that the "specific pancreatic secretin" of duodenal mucosa is not present in other tissues, and have been able to concentrate secretin so that 0.1 milligram injected intravenously will cause the pancreas to secrete.

We (Ivy and Oldberg) next directed our attention to the gall bladder. We were impressed by the facts (1) that fat stimulated the pancreas to secrete, (2) that fat caused the gall bladder to evacuate, and (3) that bile played an important rôle in the digestion and absorption of fat. The correlation of these facts suggested that fatty acids caused secretin to be formed as was already known, and that the secretin formed not only caused the pancreas to secrete but also caused the gall bladder to contract. We tested out this theory and found that the gall bladder is caused to contract and evacuate by a hormone closely related to secretin, but as we now believe, not identical with it. We have named this hormone cholecystokinin.

We have shown that when the gall bladder is connected to an apparatus for recording intra-gall bladder pressure, an injection of cholecystokinin will cause the gall bladder to contract, increasing the pressure from 1 to 11 centimeters of bile pressure. When several injections are made at ten minute intervals, the pressure within the gall bladder may rise as high as 26 centimeters of bile pressure. It has also been shown that when the gall bladder is filled with an x-ray opaque material such as iodized oil, or is "visualized" with tetraiodophenolphthalein (Graham-Cole), an injection of cholecystokinin at ten minute intervals will cause evacuation of the gall bladder. By cross-circulating two dogs (i. e., so that the blood of one dog mixed with the blood of the other) it was found that the introduction of dilute acid into the duodenum of one dog caused this dog's gall bladder to contract within two minutes and the gall bladder of the other to contract from six to ten minutes later. Finally, we have been able to concentrate or "purify" cholecystokinin to the extent that 1 milligram of the dry powder will cause a contration of the gall bladder. Cholecystokinin is effective in man, but no more effective than egg-yolk and cream taken by mouth.

CONTRIBUTIONS OF THE PHYSICAL SCIENCES TO HUMAN WELFARE*

BY

CHARLES T. KNIPP
University of Illinois, Urbana

I wish to address myself to the high school students attending the Junior Science Section on the general topic: Contributions of the Physical Sciences to Human Welfare.

You will at once agree with me that this is, in a considerable sense, a mechanical age—an age of machines. You accept our wonderful labor-saving machines, our rapid transit, our practically instantaneous radio communication, our innumerable electrical devices; you accept all these and more, I dare say, as essentials to your very existence and happiness. You are not particularly excited by the radio. From your standpoint it has always been with us. Similarly, as far as you are concerned, electricity itself with its many applications has always been with you. And the automobile, how commonplace it is! Most of you do not realize that your parents and grandparents scarcely drove more than twenty-five miles in one day, and that their radius of visiting (by horse and buggy) scarcely ever exceeded forty miles. Compare this with driving four hundred to five hundred miles by auto between sunrise and sunset! And with a touring radius limited only by the confines of this continent! Most of you have never had a pair of reins in your hands. A three hundred dollar team of fine Percheron draft horses excites your interest, while a five thousand dollar automobile passes unnoticed. What brought about this wonderful change in our manner of locomotion? It was the result of scientific inquiry, whether that has been in the university, in the factory, or on the farm. It was the application of the principles of physics and chemistry to the perfection of our methods of travel in response to the general present-day speeding up of human activities. The application of the principles of physics in the development of the automobile unit as a whole, and of chemistry in the extraction of the high test gasolines that are so efficiently used as fuels. By the combined efforts of the mechanical and chemical engineers (we call their work applied science) an auto weighing one ton may readily be transported a distance of twenty-five miles on one gallon of gasoline. Fifteen or twenty years ago the dis-

* Read before the Junior Section of the Illinois State Academy of Science, May 8, 1931.

tance was but half of this. Through further research the distance may reach fifty miles per gallon.

Thinking seriously of the wonderful mechanism located under the hood, sensitive to the slightest touch of the hand, yet powerful in extent to the combined efforts of twenty-five to fifty horses—there is the carburetor unerring in supplying the fuel in just the right mixture, the engine itself with its cycles of compression, the ignition supplied by a storage battery which really is the very heart of the whole contrivance, the generator, the clutch, the transmission, the differential, the electric starter, the oiling system, the radiator, fan, speedometer, lights, steering device, horn, and, possibly as important as any in preventing accidents, a full set of brakes. In short, we have in the modern automobile a power plant designed for continuous service and rough usage, designed to be driven by people who have no knowledge of the factors involved, yet which will give service for weeks and months without attention from the owner other than supplying oil and fuel.

Such results did not come by chance. Each mechanical part, every principle involved, and the perfect functioning of the whole as a unit are the result of years of scientific investigations—in fact are the result of everything that has gone before for at least one hundred years. Take for instance the part that electricity plays in the automobile. If it were not for electricity the automobile would be next to impossible. How would the compressed gas in the engine cylinders be exploded except by the electric spark? How would the engine be started except by the motor driven in turn by the current drawn from the storage battery? And further how would the storage battery be replenished (charged) except by a dynamo generating the charging current?

We thus see that the auto is very much dependent on an electric current, but whence electricity, and what is it? To discuss this takes us back three or more generations, back to the first half of the nineteenth century and further, to the time of Faraday in England, and to Franklin and Henry in America. Before this, electricity was the mystery of the ages. Trees were rent asunder by the lightning and the thunder rolled, but no one knew aught of its source, nature, or possible utility to man. Benjamin Franklin was the first to show that lightning and the electric spark that one gets when stroking a cat's back are one and the same thing, differing only in intensity. The Italian physicist, Volta, was the first to demonstrate that the electric current that results when certain metals are placed in a chemical solution is the same as the lightning bolt or the spark that may be had by stroking cat fur.

Let us look still more closely into the general subject of electricity, this wonderful entity that is so much used in this electro-mechanical age, the manifestations and uses of which we accept in such a matter-of-fact way. The present advance in electricity and in electrical discharges dates back only about thirty-five or forty years. Sir J. J. Thomson, of the Cavendish Laboratory, Cambridge, England, was the pioneer investigator in the discharge of electricity through gases. Examples of such discharges are the many neon signs that one sees on business streets. He identified the electron as a distinct entity, having a negative charge of electricity, and present in all matter. He showed that these electrons may be made to flow through a wire by connecting that wire to a battery or dynamo. Thus the electron in motion constitutes an electric current. By rubbing an ebonite rod with cat fur electrons are separated out and remain on the rod giving it a negative charge, while at the same time the same number of electrons leave the cat fur. This absence of electrons in a body leaves it with a positive charge. The interaction between positive and negative charges is nicely shown with an ordinary gold-leaf electroscope.

Twenty-five years ago Thomson stated that "we know more nearly what electricity is from the study of the current flowing through gases than from its flow through solids or through liquids." Great advances have been made since that time, and it may now be stated that we are beginning to know vaguely what electricity is though many enigmas remain to be solved. We know much regarding its properties and the laws governing its flow. We can construct electrical circuits and predict the resultant current flowing under given conditions, we can design dynamos and transformers that will give you exactly 110 volts at your lamp sockets. We can do all these and more, but at bottom we do not know the why and wherefore of electricity itself.

The smallest charge of electricity, as stated above, is the electron. Its mass is very small, about 1/1800 that of the hydrogen atom. Each atom of hydrogen has associated with it one, and only one, electron. If the electron is taken away we no longer have a hydrogen atom but an entity carrying a positive charge. This entity is styled a proton. Sir Ernest Rutherford, also of the Cavendish Laboratory, was the first to discover its dimensions and density. The proton is a hard nucleus—but of what? That is the question. It has ponderable mass. It, like the electron, has a charge except that it is positive. These two charges are equal but opposite in sign. Each taken by itself would behave like a charged pith ball. If we allow one proton to unite with one electron we have an uncharged (or neutral) atom called an atom of hydrogen, the first in our series of the ninety-three known elements.

These electrons and protons are building stones. These two entities in various combinations make up everything that we see about us, be that living matter or inert objects.

I have traced hurriedly and in rather rambling fashion one outstanding development—the automobile—in this mechanical age, and called attention to the part that electricity plays in the finished machine, dwelling for a moment on the why and wherefore of electricity itself. The above is but one of many important developments that may be traced down to the present time. Possibly more wonderful in its speed of development is the general subject of radio communication. The mathematical theory predicting electromagnetic waves was made by Maxwell, an English physicist, in 1865. The experimental verification of this theory was made by Heinrich Hertz, a German physicist, in 1888. Wireless telegraphy became a means of communication in the late nineties, and radio, as we know it now, became a fact with the invention of the three-electrode tube in 1907. Since then the development was rapid resulting in the talking movies and radio television installations of today in which the photo-electric cell plays such an important part.

Other lines are equally important and their historical development equally fascinating.

It is worthwhile to note the intense interest that has sprung up and is continuing in science throughout this country and throughout the world. Universities everywhere are active in research, even the colleges and some of the larger high schools have caught the "spirit of inquiry." It is significant that the industries have long ago abandoned the rule of thumb method and now have large research staffs in their employ. Some of our larger electrical corporations employ research experts with the express understanding that they are free to pursue any project in pure or applied science that may be of interest to them, knowing full well that sooner or later the investigation under way will result in some practical applications of benefit to mankind.

An indication of how the spirit of inquiry has pervaded public and private institutions and also the industries is afforded by reference to the present (May, 1931) program offered by the American Physical Society at its Washington, D. C., meeting, in which appeared no less than one hundred sixty abstracts of researches either finished or under way. And this does not represent the work of the year. This society holds four other meetings, averaging about fifty papers each, making thus an output of some three hundred fifty papers for the school year of 1930-31.

Nor is this the end. The activity at the present time is quite in contrast to a prediction made in the late nineties by a distinguished physicist and electrical engineer when he said that all of the important discoveries had been made and it only remains for us to seek greater refinement in the measurements already made. Nothing could have been farther from the truth. No one man, or set of men, can predict what the future holds for us. Certainly one should confidently expect the contributions during the next thirty years to be quite as outstanding as those in the three decades just passed. You students entering upon your college courses have a golden opportunity. The spirit of inquiry may not lead to riches, but I dare say if pursued with devotion it will lead to happiness that riches cannot buy.

I should feel remiss if I did not call attention to the Century of Progress Exposition that is to be held in Chicago in 1933. As the name implies, this will be a fair setting forth the progress made in all lines of human endeavor during the past century. The Directors decided early that this Exposition should be given the scientific approach. To that end they appealed to the National Research Council for a policy. This body in turn appointed 40 chairmen, leaders in their divisions, to head 40 committees of ten members each, all committees to serve in an advisory capacity to the fair officials. Of these about 10 represent the pure sciences, and the rest the applied sciences. Each committee was instructed to plan a suitable exhibit based on the scientific approach. The committee on physics did its work in the fall of 1929 and early 1930.

Note: The following experiments were performed as the closing part of the lecture.

1 High frequency high potential generator, small set.
2 Simple discharge tube.
3 Positive ray tube (with fixed vacuum).
4 Electrodeless discharges—
    a) Neon bulb.
    b) Hydrogen bulb.
    c) Mercury vapor toroid.
    d) Combination of (a) and (c).
5 Mercury vapor tube (pith balls).

MINUTES OF MEETINGS OF THE 1931-1932 COUNCIL

First Meeting

The first meeting of the new Council was called to order by Vice President Baker at 8:10 a. m., May 9, 1931, in a conference room in the Hotel Père Marquette, Peoria. President Cole, M. M. Leighton, and A. S. Coggeshall were absent. Past Secretary F. M. Fryxell was also present.

The Secretary read letters from Earl S. Ward, Convention Secretary, Danville Chamber of Commerce, and John E. Wakely, Principal of Danville High School, extending an invitation to the Illinois State Academy of Science to hold its next annual meeting (the twenty-fifth) in Danville. Mr. Ward and Mr. Frank Gough of the Convention Committee of the Danville Chamber of Commerce appeared personally to present this invitation, and explained the facilities for the meetings and possible arrangements for field trips at Danville. In the absence of President Cole it was voted that the invitation be placed on file to be considered at the next Council meeting.

A letter was presented to the Council by Arthur Epstein, Chairman of the Local Committee for the Peoria meeting, requesting that his resignation be accepted as Chairman of the Committee on Membership, because of the lack of time to devote to this task. It was voted that Mr. Epstein's resignation be accepted, and that he should continue as a member of this committee. Mr. Don Carroll was elected Chairman of the Committee on Membership to replace Mr. Epstein.

The Committee on Ecological Survey and the Committee on Conservation were retained for the year 1931-32. The Committee on Legislation and Finance was continued, with the exception that the Secretary was substituted for H. C. Cowles. The election of the Committee on High School Science Clubs was deferred until the next meeting of the Council. L. J. Thomas was elected to serve as the third member of the Committee on Publications. The Committee on State Hall of Fame was retained. A. C. Walton was re-elected delegate to the American Association for the Advancement of Science. The appointment of a delegate to the Conservation Council of Chicago was deferred until the next meeting of the Council.

Miss Dorothy Rose of the State Geological Survey was elected to serve as Editor for the year 1931-32, with an honorarium of $150.00

It was voted that the material to be included in Number 4 of Volume 23 shall be decided by the Committee on Publications.

The question of the preparation of memorial articles summarizing the life and scientific work of two outstanding members of the Academy who had died within the last year, A. R. Crook and C. W. Andrews, was deferred until the next meeting.

The Secretary was instructed to notify all new members of their election, and to have printed a large number of notification blanks.

It was voted that the Secretary receive an honorarium of $150, and that he be ordered to obtain the necessary stationery and supplies, not to exceed $100, before the next meeting of the Council.

The meeting adjourned at 9:00 a. m.

(Signed) H. R. WANLESS, *Secretary*

SECOND MEETING

The second meeting of the Council was called to order at 1:30 p. m., June 1, 1931, at the University Club, Urbana, with President Cole in the chair. The members present were F. C. Baker, G. D. Fuller, F. R. Jelliff, M. M. Leighton, and H. R. Wanless.

The Secretary was requested to write Mr. Williamson, State Printer, concerning his connection with the Illinois Junior Science magazine, for the information of the council. Action on a bill presented to the Academy for the publication of this magazine was postponed until the next meeting of the Council.

Mr. Jelliff read a letter from Mr. Williamson relative to the cost of publication of Volume 23 of the Transactions of the Academy. The bills amount to $1570.82 for publication and $521.47 for cuts used. The total, $2098.29, for the publication of Nos. 1 and 3 of the volume exceeds by $348.29 the allowance of $1750.00 made for the publication of the entire volume. This increased cost was due to the type of paper used, an increase in the cost of cuts over the estimate, and increase of 114 pages over the estimate. Mr. Jelliff stated that he would correspond with Mr. Walsh relative to the payment of the amount in excess of the allowance. It was voted that the Council authorize the payment of whatever balance there may be for the printing of the Transactions in case the Department of Registration and Education will not take this over.

It was voted that the Publications Committee issue a memorandum to the Editor, describing her duties, and that the Editor be authorized to make necessary expenditures, not to exceed $65.00, as outlined in her letter of June 1st.

It was voted that the Librarian be notified of his duties.

It was voted that the Council authorize the publication of the papers composing the symposium of the Economics Section as a bulletin of the State Water Survey, providing that the editing is done by the Editor of the Transactions of the Academy and final proof approved by the Editor, and that the Bulletin of the Water Survey shall say that the papers were presented before the State Academy and included in the Transactions. The Committee on Publications was requested to investigate the possibility of arranging this Water Survey Bulletin so that the size of printed page, style of type and stock shall conform with those to be used in the Transactions, and that the type pages be held until the Transactions of the Academy are ready to be printed, and that the two be printed by the same printer. If these things can be arranged the Water Survey is to pay the cost of composition, and the Academy to pay for the changes of running headings of the pages.

It was voted that the Committee on Publications prepare rules governing the number of cuts to be allowed per article in the Transactions, without extra payment by the author. It was voted that the cost of the cuts should not exceed the equivalent in cost of two pages of half tones, including the additional cost of pages used with zinc etchings.

The question of establishing a policy regarding the publication of papers dealing with problems not relating to Illinois was discussed, but no action was taken.

The Secretary was requested to take up with the State Printer the possibility of preparing a contract between the State Printer and individual authors for the cost of reprints from the Transactions, so that the collection of money for reprints would not have to be made by the Treasurer. The Secretary was requested to consult with the Editor about this matter.

The President appointed the following committee to codify the acts and practices of the Council for the information of future officers: L. C. Thomas, Chairman, F. C. Baker, and the Secretary.

The following were chosen as the Committee on High School Science Clubs: Mabel Spencer, Chairman, Paul Houdek, S. Aleta McEvoy (Chairman of Junior Section of the Academy), L. C. Thomas, T. H. Wilson, and Louis A. Astell, Advisory member.

Mr. V. O. Graham was appointed delegate to the Conservation Council of Chicago.

It was agreed that Mr. Don Carroll should continue to serve as Chairman of the Membership Committee until the next council meet-

ing, when he might be relieved if his other duties would not permit his continuing this work.

It was voted that the Council authorize the University of Chicago as the meeting place for the 1932 meeting, to be held late in April or early in May, providing arrangements for this can be made by the President. A. C. Noé was elected Vice-President and ex-officio Chairman of the Local Committee in charge of arrangements for the next annual meeting.

The Council decided to ask William D. MacMillan, H. C. Cowles, and U. S. Grant to prepare brief memorial articles summarizing the life and scientific work of A. A. Michelson, C. W. Andrews, and A. R. Crook.

The Committee on Publications was authorized to see that the date of mailing be placed on the title page of the Transactions.

C. A. Shull was appointed Chairman of the botany Section and G. Thomas Hull was appointed Chairman of the Section on Medicine and Public Health for the next meeting.

The Secretary was authorized to consult with Dean H. W. Mumford about the desirability of establishing a section on Agriculture for the coming year.

The Council authorized the establishment of a Section on Anthropology for the next annual meeting. A. R. Kelly was appointed Chairman of this section.

The Secretary was authorized to consult with the Committee appointed by the Economics Section at the Peoria meeting to organize this section for the next annual meeting.

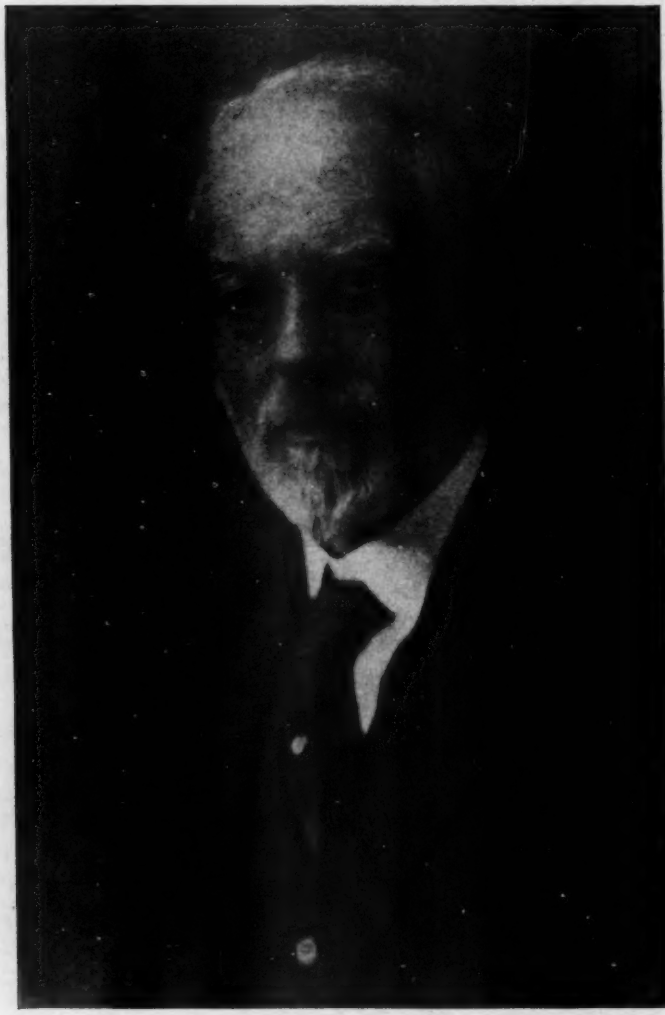
The Secretary was authorized to employ stenographic help when necessary.

A proposal for an amendment to the Constitution changing the membership of the Council by the addition of the Secretary of the preceding year was deferred until the next meeting of the Council. A proposal to plan the place of meeting and the subject of the general program for a number of years in advance was discussed, but no action was taken upon it.

The meeting was adjourned at 4:45 p. m.

(Signed) HAROLD R. WANLESS, *Secretary*

MEMOIRS



—Courtesy of the John Crerar Library

CLEMENT W. ANDREWS

CLEMENT W. ANDREWS

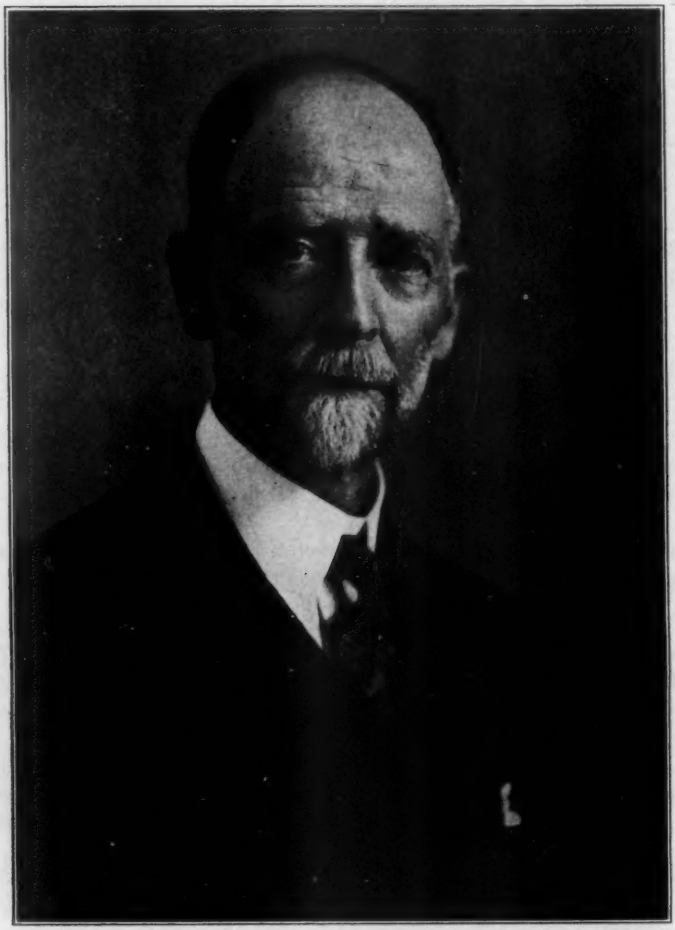
1858-1930

Dr. Clement W. Andrews, for many years the librarian of the John Crerar Library in Chicago, was born in Salem, Massachusetts in 1858, and was a representative of an old and distinguished New England family. He was educated in the Boston Latin School, and later at Harvard University, securing the A. B. degree in 1879 and the A. M. degree in 1880. The honorary degree of LL. D. was conferred on him by Northwestern University in 1911.

Upon graduating from Harvard University, Mr. Andrews carried on chemical research in various laboratories. In 1883 he was appointed instructor in chemistry in the Massachusetts Institute of Technology. He served in this capacity until 1895, when he was called to Chicago to give his services to the Crerar Library. While at the Massachusetts Institute of Technology he also served as librarian, and thus became well fitted to assume the duties which fell to him in Chicago.

Under the direction of Dr. Andrews the John Crerar Library was built up from nothing in 1895 to 500,000 volumes. To Dr. Andrews mainly is due the distinguished position which the John Crerar Library holds in the scientific world. Dr. Andrews had great ability not only as a librarian but as an organizer of a scientific library. He built up the Crerar Library along lines which are likely to be followed for a long time in the future. On account of ill health Dr. Andrews retired in 1928, becoming Emeritus Librarian. He died November 20th, 1930.

HENRY C. COWLES.



—*Courtesy of the Illinois State Museum*

ALJA ROBINSON CROOK

ALJA ROBINSON CROOK
1864-1930

Dr. A. R. Crook was born in Circleville, Ohio, June 17, 1864. He graduated from Ohio Wesleyan University in 1887. After graduation he held the position of superintendent of schools at Mt. Carmel, Ohio, from 1887 until 1889. From 1889 until 1892 he spent much time abroad continuing his scientific studies in the British Museum, at the Jardin des Plantes, the University of Zürich, and the University of Munich. He received the degree of Doctor of Philosophy at the University of Munich, his thesis being entitled "Ueber einige Fossile Knochenfische aus der Mittleren Kreide von Kansas." It was published in *Paleontographica* in 1892.

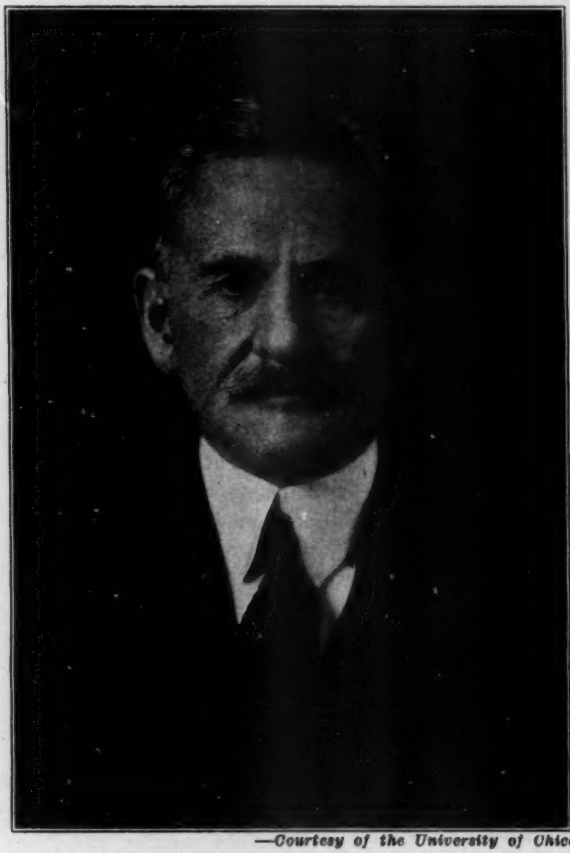
On his return Dr. Crook served one year as professor of natural history at Wheaton College, Wheaton, Illinois. In 1893 he was called to Northwestern University as professor of minerology and petrology, the title being changed later to professor of minerology and economic geology.

In the summer of 1906 Dr. Crook was appointed Curator of the State Museum of Illinois, which was then housed in a room of the State Arsenal. Under his direction the museum expanded very rapidly, and now occupies a large part of the space in the fine new Centennial Building on the Capitol grounds. From 1917 on Dr. Crook served as Chief of the State Museum Division of the Department of Education.

Dr. Crook was the author of numerous publications. One of the most important of these is his "Guide to Mineral Collections of the Illinois State Museum," which is one of the finest books of its kind and is a standard reference work in museums.

Dr. Crook was one of the leaders in the foundation of the Illinois State Academy of Science in 1908. More than almost anyone else, his labor made possible the development of this organization to its present place and power in the State. He was its first secretary and he held this position, which is easily the most important one in the Academy, from the time of its foundation until 1910, and also again at a later date. He was fittingly honored with the presidency of the Academy, for which he had done so much, in 1914; and he was the very efficient librarian of the Academy from 1915 until his death, May 30, 1930. The Academy can never forget the important work he did in its establishment and its carrying on in later years. It is fitting that a heart felt tribute should be given his memory.

HENRY C. COWLES.



—*Courtesy of the University of Chicago Press*

ALBERT A. MICHELSON

ALBERT A. MICHELSON

1852-1931

Professor Albert A. Michelson, head of the Department of Physics at the University of Chicago since 1892, died May 8, 1931.

He was born in Strenlo, Germany, December 19, 1852, and was brought to the United States when about two years old. He entered the United States Naval Academy at Annapolis in 1869, was graduated in 1873, served as midshipman in the navy for two years and instructor in physics and chemistry in the Naval Academy from 1875 to 1879. The next year was spent in the Nautical Almanac Office in Washington, followed by two years of study at the Collège de France and the universities of Heidelburg and Berlin. For three years he was professor of physics at Case University and became professor and head of the Department of Physics at the University of Chicago in 1892.

Professor Michelson's great contributions to physics were in the field of experimental optics. He began work on the determination of the velocity of light while at the Naval Academy, continued it at Cleveland, and took up the problem again in 1924 at the Mount Wilson Observatory as research associate of the Carnegie Institute of Washington. There he was last engaged on a measurment of the velocity of light in a vacuum tube three feet in diameter and a mile long. The success of the experiment was assured at the time of his death.

Professor Michelson developed a special form of the interferometer which he used in measuring the diameter of celestial bodies, and with Professor Morley of Cleveland he attempted to measure the speed of the earth through space. The negative result of this experiment gave rise to the Einstein theory of relativity.

Professor Michelson published about seventy-five scientific papers. He received most of the honors which come to a scientific man—membership in scientific societies, honorary degrees, and medals for scientific work—yet his interests were varied as shown by his proficiency in tennis, billiards, bridge, chess, sketching, and with the violin.

It is not always that a man of Professor Michelson's genius is granted so liberal a span of life; for this his friends and the scientific world must feel profound gratitude. New theories in physics will come and go, but his contributions of exact quantitave measurements have become a part of the science and will be an example and an inspiration to future generations of physicists.

HENRY G. GALE.

CONSTITUTION AND BY-LAWS

OF THE

ILLINOIS STATE ACADEMY OF SCIENCE

CONSTITUTION

ARTICLE I. NAME

This Society shall be known as THE ILLINOIS STATE ACADEMY OF SCIENCE.

ARTICLE II. OBJECTS

The objects of the Academy shall be the promotion of scientific research, the diffusion of scientific knowledge and scientific spirit, and the unification of the science interests of the State.

ARTICLE III. MEMBERS

The membership of the Academy shall consist of two classes as follows: *National Members* and *Local Members.*

National Members shall be those who are members also of the American Association for the Advancement of Science.

Local Members shall be those who are members of the local Academy only. Each member, except life members of the Academy, shall pay an admission fee of one dollar and an annual assessment of one dollar.

Both national members and local members may be either *Life Members, Active Members, or Non-resident Members.*

Life Members shall be national or local members who have paid fees to the Academy to the amount of twenty dollars at one time or complete payments before the annual meeting of 1928. The dues from such a source are to be placed as a permanent fund and only the income is to be used.

Active Members shall be national or local members who reside in the State of Illinois.

Non-resident Members shall be active members or life members who have removed from the State of Illinois. Their duties and privileges shall be the same as active members except that they may not hold office.

Charter Members are those who attended the organization meeting in 1908, signed the constitution, and paid dues for that year.

For election to any class of membership, the candidate's name must be proposed by two members, be approved by a majority of the committee on membership, and receive the assent of three-fourths of the members voting.

ARTICLE IV. OFFICERS

The officers of the Academy shall consist of a President, a First Vice-President, a Second Vice-President, a Secretary, a Treasurer, a Librarian, and an Editor. These officers, with the exception of the Second Vice-President, the Librarian, and the Editor, shall be chosen by ballot at the annual meeting and shall hold office for one year or until their successors qualify.

The Second Vice-President, who may be a resident of the town in which the next annual meeting is to be held, may be appointed by the Council each year when the next meeting place shall have been decided upon, in order that he may serve as ex-officio chairman of the Committee on Local Arrangements.

The Chief of the State Museum Division of the Department of Registration and Education of the State of Illinois shall be the Librarian of the Academy.

The Editor shall be selected by the Council upon the recommendation of the Committee on Publication.

The above officers shall perform the duties usually pertaining to their respective offices.

It shall be one of the duties of the President to prepare an address which shall be delivered before the Academy at the annual meeting at which his term of office expires.

The Librarian shall have charge of all the books, collections, and material property belonging to the Academy.

The Editor, under the direction of the Committee on Publication, shall have entire charge of the editing and printing of the annual volume of the Transactions and also of such other papers as the Committee on Publication shall deem advisable.

Article V. Council

The Council shall consist of the President, First Vice-President, Second Vice-President, Secretary, Treasurer, Librarian, the retiring president and his immediate predecessor. To the Council shall be entrusted the management of the affairs of the Academy during the intervals between regular meetings.

At the Annual Meetings the presiding officer of each of the affiliated scientic societies of the State shall meet with the Academy Council for the discussion of policies.

Article VI. Standing Committees

The Standing Committees of the Academy shall be a Committee on Publication, a Committee on Membership, and a Committee on Affiliation and such other committees as the Academy shall from time to time deem desirable.

The Committee on Publication shall consist of the President, the Secretary and a third member chosen annually by the Academy.

The committees on Membership and Affiliation shall each consist of five members chosen annually by the Academy.

Article VII. Meetings

The regular meetings of the Academy shall be held at such time and place as the Council may designate. Special meetings may be called by the Council, and shall be called upon written request of twenty members.

Article VIII. Publications

The regular publications of the Academy shall include the Transactions of the Academy and such papers as are deemed suitable by the Committee on Publication.

All paid up members shall receive gratis the current publication of the Academy.

Article IX. Affiliation

The Academy may enter into such relations of affiliation with other organizations of appropriate character as may be recommended by the Council, and may be ordered by a three-fourths vote of the members present at any regular meeting.

ARTICLE X. AMENDMENTS

This constitution may be amended by a three-fourths vote of the membership present at an annual meeting, provided that notice of the desired change has been sent by the Secretary to all members at least twenty days before such meeting.

BY-LAWS

I. The following shall be the regular order of business:

1. Call to order.
2. Reports of officers.
3. Reports of standing committees.
4. Election of members.
5. Reports of special committees.
6. Appointment of special committees.
7. Unfinished business.
8. New business.
9. Election of officers.
10. Program.
11. Adjournment.

II. No meeting of the Academy shall be held without thirty days previous notice by the Secretary to all members.

III. Fifteen members shall constitute a quorum of the Academy. A majority of the Council shall constitute a quorum of the Council.

IV. No bill against the Academy shall be paid without an order signed by the President and the Secretary.

V. Members who shall allow their dues to remain unpaid for three years, having been annually notified of their arrearage by the Treasurer, shall have their names stricken from the roll.

VI. The Librarian shall have charge of the distribution, sale, and exchange of the published Transactions of the Academy, under such restrictions as may be imposed by the Council.

VII. The presiding officer shall at each annual meeting appoint a committee of three who shall examine and report in writing upon the account of the Treasurer.

VIII. No paper shall be entitled to a place on the program unless the manuscript or an abstract of the same shall have been previously delivered to the Secretary. No paper shall be presented at any meeting, by any person other than the author, except on vote of the members present at such meeting. No paper shall be published unless the manuscript be handed to the Secretary within thirty days after the Annual meeting. All papers are limited to twenty pages, additional pages are to be paid for by the author. Except by invitation of the Council, no paper may be accepted for the program unless the author is a member of the Academy or an applicant for membership.

IX. The Secretary and the Treasurer shall have their expenses paid from the Treasury of the Academy while attending council meetings and annual meetings. Other members of the Council may have their expenses paid while attending meetings of the Council, other than those in connection with annual meetings.

X. These by-laws may be suspended by a three-fourths vote of the membership present at any regular meeting.

CONSTITUTION AND BY-LAWS
JUNIOR SECTION
OF THE
ILLINOIS STATE ACADEMY OF SCIENCE

CONSTITUTION

Article I. Name

This organization shall be known as the Junior Section of the Illinois State Academy of Science.

Article II. Objects

The object of this organization shall be to create and foster the best interest of science together with the spirit of American democracy through scientific, moral, and social activities in the various high schools and communities of the state.

Article III. Membership

The membership shall consist of the active members of the various scientific clubs affiliated with the Illinois State Academy of Science, under the rules and regulations prescribed by the latter Society.

Article IV. Delegates

The number of degelates from each club shall be the same regardless of the size of the club.

This number of delegates will be determined annually by the Governing Committee as prescribed in Article VI below.

Only the official delegates of the various clubs shall vote on the matters representing the official business of the organization.

These provisions shall not be construed as barring additional guests from the several clubs as far as accommodations can be provided.

Articles V. Officers

The officers of the Junior Section of the Illinois State Academy of Science shall consist of a President, a Vice-President, a Secretary, and a Treasurer.

These officers shall be elected by the delegates from the several clubs represented at the regular annual meetings of the organization.

The above officers shall perform the duties usually pertaining to their respective offices.

Article VI. Governing Committee

The Governing Committee shall consist of the chairman of the Section of the Illinois State Academy of Science designated as "High School Science Clubs," together with such other members as may be elected by the Junior Section.

This committee shall in turn be governed through the Council of the Illinois State Academy of Science, through constitution and by-laws of the latter society in-so-far as they may involve the activities of the Junior Section of the Illinois State Academy of Science.

Article VII. Limitation of Expenses

No bills in excess of $5.00 shall be incurred by the Junior Section without the authorization of the Council of the State Academy.

Article VIII. Bills

No bill against the Junior Section of the Illinois State Academy of Science shall be paid without an order endorsed by the President, Secretary, and Treasurer of the Illinois State Academy of Science and the chairman of the Governing Committee of the Junior Section.

Article IX. Meetings

The regular meeting of the Junior Section of the Illinois State Academy of Science shall be held at such time and at such place as the Council of the Illinois State Academy of Science may designate. Special meetings may be called by the chairman of the Governing Committee, by written notice to the several members of the said committee.

Article X. Affiliation

Affiliation of the various clubs with the Illinois State Academy of Science shall obtain in the manner prescribed by that Society.

Article XI. Dues and Special Assessments

Dues and special assessments in addition to the fees for affiliation above, may be made by the Governing Committee, providing such levies are in keeping with the provisions of Articles VII and VIII above.

Article XII. Amendments

This constitution may be amended by a three-fourths vote of the official delegates present at an annual meeting, and subject to ratification of the Council, provided that notice of the desired change has been sent to the chairman of the Governing Committee and to the Secretaries of the State Academy and the Junior Section of the Illinois State Academy of Science at least twenty days before such meeting.

BY-LAWS

I. The following shall be the regular order of business:

1. Call to order.
2. Reports of officers.
3. Reports of standing committees.
4. Election of members; i. e., recognition of new clubs affiliated with the Academy, etc.
5. Reports of special committees.
6. Appointment of special committees.
7. Unfinished business.
8. New business; roll call of clubs for reports of outstanding activity.
9. Election of officers.
10. Program.
11. Adjournment.

II. The Chairman of the High School Section shall at each annual meeting appoint a committee of three who shall examine and report in writing upon the account of the Treasurer.

III. These by-laws may be suspended by a three-fourths vote of the official delegates present.

PAST OFFICERS OF THE ILLINOIS STATE ACADEMY OF SCIENCE

ORGANIZATION MEETING, SPRINGFIELD, Dec. 7, 1907.
Chairman, U. S. GRANT, Northwestern University, Evanston.
Secretary, A. R. CROOK, State Museum, Springfield.

FIRST MEETING, DECATUR, Feb. 22, 23, 1908.
President, T. C. CHAMBERLIN, University of Chicago.
Vice-President, HENRY CREW, Northwestern University, Evanston.
Secretary, A. R. CROOK, State Museum, Springfield.
Treasurer, J. C. HESSLER, James Millikin University, Decatur.

SECOND MEETING, SPRINGFIELD, Feb. 20, 1909.
President, T. C. CHAMBERLIN, University of Chicago.
Vice-President, HENRY CREW, Northwestern University, Evanston.
Secretary, A. R. CROOK, State Museum, Springfield.
Treasurer, J. C. HESSLER, James Millikin University, Decatur.

THIRD MEETING, URBANA, Feb. 18, 1910.
President, S. A. FORBES, University of Illinois, Urbana.
Vice-President, JOHN M. COULTER, University of Chicago.
Secretary, A. R. CROOK, State Museum, Springfield.
Treasurer, J. C. HESSLER, James Millikin University, Decatur.

FOURTH MEETING, CHICAGO, Feb. 17, 18, 1911.
President, JOHN M. COULTER, University of Chicago.
Vice-President, R. O. GRAHAM, Illinois Wesleyan University.
Secretary, A. R. CROOK, State Museum, Springfield.
Treasurer, J. C. HESSLER, James Millikin University, Decatur.

FIFTH MEETING, BLOOMINGTON, Feb. 23, 24, 1912.
President, W. A. NOYES, University of Illinois, Urbana.
Vice-President, J. C. UDDEN, University of Texas.
Secretary, FRANK C. BAKER, Chicago Academy of Science.
Treasurer, J. C. HESSLER, James Millikin University, Decatur.

SIXTH MEETING, PEORIA, Feb. 21, 22, 1913.
President, HENRY CREW, Northwestern University, Evanston.
Vice-President, A. R. CROOK, State Museum, Springfield.
Secretary, OTIS W. CALDWELL, University of Chicago.
Treasurer, J. C. HESSLER, James Millikin University, Decatur.

SEVENTH MEETING, EVANSTON, Feb. 20, 21, 1914.
President, FRANK W. DEWOLF, State Geological Survey, Urbana.
Vice-President, H. S. PEPOON, Lake View High School, Chicago.
Secretary, E. N. TRANSEAU, State Normal School, Charleston.
Treasurer, J. C. HESSLER, James Millikin University, Decatur.

EIGHTH MEETING, SPRINGFIELD, Feb. 19, 20, 1915.
President, A. R. CROOK, State Museum, Springfield.
Vice-President, U. S. GRANT, Northwestern University, Evanston.
Secretary, E. N. TRANSEAU, State Normal School, Charleston.
Treasurer, J. C. HESSLER, James Millikin University, Decatur.

NINTH MEETING, URBANA, Feb. 18, 19, 1916.
President, U. S. GRANT, Northwestern University, Evanston.
Vice-President, E. W. WASHBURN, University of Illinois, Urbana.
Secretary, A. R. CROOK, State Museum, Springfield.
Treasurer, H. S. PEPOON, Lake View High School, Chicago.

TENTH MEETING, GALESBURG, Feb. 23, 24, 1917.
President, WILLIAM TRELEASE, University of Illinois, Urbana.
Vice-President, H. E. GRIFFITH, Knox College, Galesburg.
Secretary, J. L. PRICER, State Normal University, Normal.
Treasurer, H. S. PEPOON, Lake View High School, Chicago.
Librarian, A. R. CROOK, State Museum, Springfield.

ELEVENTH MEETING, JOLIET, Feb. 22, 23, 1918.
President, J. C. HESSLER, James Millikin University, Decatur.
Vice-President, JAMES H. FERRISS, Joliet.
Secretary, J. L. PRICER, State Normal University, Normal.
Treasurer, T. L. HANKINSON, State Normal School, Charleston.
Librarian, A. R. CROOK, State Museum, Springfield.

TWELFTH MEETING, JACKSONVILLE, March 21, 22, 1919.
President, R. D. SALISBURY, University of Chicago.
Vice-President, ISABEL S. SMITH, Illinois College, Jacksonville.
Secretary, J. L. PRICER, State Normal University, Normal.
Treasurer, T. L. HANKINSON, State Normal School, Charleston.
Librarian, A. R. CROOK, State Museum, Springfield.

THIRTEENTH MEETING, DANVILLE, Feb. 20, 21, 1920.
President, HENRY B. WARD, University of Illinois, Urbana.
Vice-President, GEO. D. FULLER, University of Chicago.
Secretary, J. L. PRICER, State Normal University, Normal.
Treasurer, W. G. WATERMAN, Northwestern University, Evanston.
Librarian, A. R. CROOK, State Museum, Springfield.

FOURTEENTH MEETING, CARBONDALE, April 29, 30, 1921.
President, HENRY C. COWLES, University of Chicago.
Vice-President, CHAS. T. KNIPP, University of Illinois, Urbana.
Secretary, J. L. PRICER, State Normal University, Normal.
Treasurer, W. G. WATERMAN, Northwestern University, Evanston.
Librarian, A. R. CROOK, State Museum, Springfield.

FIFTEENTH MEETING, ROCKFORD, April 27, 28, 29, 1922.
President, CHAS. T. KNIPP, University of Illinois, Urbana.
Vice-President, MISS RUTH MARSHALL, Rockford College, Rockford.
Secretary, C. FRANK PHIPPS, State Teachers' College, DeKalb.
Treasurer, WM. F. SCHULZ, University of Illinois, Urbana.
Librarian, A. R. CROOK, State Museum, Springfield.

SIXTEENTH MEETING, GALESBURG, May 3, 4, 5, 1923.
President, W. S. BAYLEY, University of Illinois, Urbana.
Vice-President, W. G. WATERMAN, Northwestern University, Evanston.
Secretary, C. FRANK PHIPPS, State Teachers' College, DeKalb.
Treasurer, WM. F. SCHULZ, University of Illinois, Urbana.
Librarian, A. R. CROOK, State Museum, Springfield.

SEVENTEENTH MEETING, ELGIN, May 1, 2, 3, 1924.
President, W. G. WATERMAN, Northwestern University, Evanston.
Vice-President, H. J. VAN CLEAVE, University of Illinois, Urbana.
Secretary, C. FRANK PHIPPS, State Teachers' College, DeKalb.
Treasurer, WM. F. SCHULZ, University of Illinois, Urbana.
Librarian, A. R. CROOK, State Museum, Springfield.

EIGHTEENTH MEETING, SPRINGFIELD, Feb. 20, 21, 1925.
President, W. G. BAIN, St. John's Hospital, Springfield.
First Vice-President, C. H. SMITH, Hyde Park High School, Chicago.
Second Vice-President, R. C. LANPHIER, Springfield.
Secretary, C. FRANK PHIPPS, State Teachers' College, DeKalb.
Treasurer, W. B. MCDOUGALL, University of Illinois, Urbana.
Librarian, A. R. CROOK, State Museum, Springfield.

NINETEENTH MEETING, HARRISBURG, April 30, May 1, 1926.
President, STUART WELLER, University of Chicago, Chicago.
First Vice-President, ELEANOR C. SMITH, Englewood High School, Chicago.
Second Vice-President, CLARENCE BONNELL, Harrisburg Township High School, Harrisburg.
Secretary, C. FRANK PHIPPS, State Teachers' College, DeKalb.
Treasurer, W. B. MCDOUGALL, University of Illinois, Urbana.
Librarian, A. R. CROOK, State Museum, Springfield.

TWENTIETH MEETING, JOLIET, Apil 29, 30, 1927.
President, WILLARD N. CLUTE, Editor, American Botanist, Joliet.
First Vice-President, MARY M. STEAGALL, Southern Illinois State Teachers' College, Carbondale.
Second Vice-President, C. E. SPICER, Joliet High School, Joliet.
Secretary, LYELL J. THOMAS, University of Illinois, Urbana.
Treasurer, W. B. MCDOUGALL, University of Illinois, Urbana.
Librarian, A. R. CROOK, State Museum, Springfield.

TWENTY-FIRST MEETING, BLOOMINGTON-NORMAL, May 4, 5, 1928.
President, H. J. VAN CLEAVE, University of Illinois, Urbana.
First Vice-President, C. FRANK PHIPPS, State Teachers' College, DeKalb.
Second Vice-President, R. H. LINKINS, Illinois State Normal University, Normal.
Secretary, LYELL J. THOMAS, University of Illinois, Urbana.
Treasurer, GEO. D. FULLER, University of Chicago, Chicago.
Librarian, A. R. CROOK, State Museum, Springfield.

TWENTY-SECOND MEETING, MACOMB, May 3, 4, 1929.

President, CLARENCE BONNELL, Harrisburg Township High School, Harrisburg.
First Vice-President, R. H. LINKINS, Illinois State Normal University, Normal.
Second Vice-President, FRED H. CURRENS, Western Illinois State Teachers' College, Macomb.
Secretary, LYELL J. THOMAS, University of Illinois, Urbana.
Treasurer, GEO. D. FULLER, University of Chicago, Chicago.
Librarian, A. R. CROOK, State Museum, Springfield.

TWENTY-THIRD MEETING, URBANA, May 2, 3, 1930.

President, M. M. LEIGHTON, State Geological Survey, Urbana.
First Vice-President, FRED R. JELLIFF, Daily Register-Mail, Galesburg.
Second Vice-President, T. H. FRISON, State Natural History Survey, Urbana.
Secretary, A. C. WALTON, Knox College, Galesburg.
Treasurer, GEO. D. FULLER, University of Chicago, Chicago.
Librarian, A. R. CROOK, State Museum, Springfield.

TWENTY-FOURTH MEETING, PEORIA, May 8, 9, 1931.

President, FRED R. JELLIFF, The Daily Register-Mail, Galesburg.
First Vice-President, WILLIAM P. HAYES, University of Illinois, Urbana.
Second Vice-President, ARTHUR L. EPSTEIN, Peoria High School, Peoria.
Secretary, F. M. FRYXELL, Augustana College, Rock Island.
Treasurer, GEO. D. FULLER, University of Chicago, Chicago.
Librarian, A. R. CROOK, State Museum, Springfield. (Deceased.)

LIST OF MEMBERS

OF THE

ILLINOIS STATE ACADEMY OF SCIENCE

Note—The names of charter members are starred; names in black-faced type indicate membership in the American Association for the Advancement of Science. Numerals in parenthesis after each member indicate the date of joining the Academy. Errors or changes in this list should be reported to the Secretary.

LIFE MEMBERS

Allee, W. C., Ph. D., University of Chicago, Chicago, Ill. (Zoology.) (1913.)
*Atwell, Chas. B., M. Ph., 545 Post St., San Francisco, Cal. (Botany.) (1908.)
*Bain, Walter G., M. D., St. John's Hospital, Springfield, Ill. (Bacteriology.) (1908.)
*Baker, Frank C., University of Illinois, Urbana, Ill. (Zoology.) (1908.)
*Barnes, R. M., LL. B., Lacon, Ill. (Zoology.) (1908.)
*Bartow, Edward, Ph. D., Univ. of Iowa, Iowa City, Iowa. (Chemistry.) (1908.)
*Barwell, John Wm., Madison and Sand Sts., Waukegan, Ill. (Anthropology.) (1908.)
*Bayley, W. S., Ph. D., University of Illinois, Urbana, Ill. (Geology.) (1908.)
*Betten, Cornelius, Ph. D., Cornell University, Ithaca, N. Y. (Biology.) (1908.)
Blair, Mary Constance, Ph. D., 1011 Grove St., Evanston, Ill. (Botany, Zoology.) (1926.)
*Bleininger, A .V., B. S., Homer Laughlin China Co., Newell, W. Va. (Ceramics.) (1908.)
Bliss, Gilbert Ames, Ph. D., 5625 Kenwood Ave., Chicago, Ill. (Mathematics.) (1926.)
*Carman, Albert P., Ph. D., University of Illinois, Urbana, Ill. (Physics.) (1908.)
*Carpenter, Chas. K., D. D., 10920 S. Hoyne Ave., Chicago, Ill. (Ornithology.) (1908.)
Chamberlain, C. J., Ph. D., University of Chicago, Chicago, Ill. (Botany.) (1911.)
Child, C. M., Ph. D., University of Chicago, Chicago, Ill. (Zoology.) (1910.)
*Clawson, A. B., B. A., Dept. of Agriculture, Washington, D. C. (Biology.) (1908.)
*Cowles, H. C., Ph. D., University of Chicago, Chicago, Ill. (Botany.) (1908.)
*Crew, Henry, Ph. D., Northwestern University, Evanston, Ill. (Physics.) (1908.)
*Davis, J. J., B. S., Purdue University, Lafayette, Ind. (Entomology.) (1908.)
*Deal, Don W., M. D., Leland Office Bldg., Springfield, Ill. (Medicine.) (1908.)
Ekblaw, George Elbert, Ph. D., State Geological Survey, Urbana, Ill. (Geology.) (1924.)
*Ekblaw, W. E., Ph. D., Clark University, Worcester, Mass. (Geology.) (1908.)
*Ewing, H. E., Ph. D., U. S. Nat. Museum, Washington, D. C. (Biology.) (1908.)
*Farrington, O. C., Ph. D., Field Museum, Chicago, Ill. (Mineralogy.) (1908.)
*Fischer, C. E. M., M. D., 25 E. Washington St., Chicago, Ill. (Medicine.) (1908.)
*Fisher, Fannie, Ass't Curator, State Museum, Springfield, Ill. (General Interest.) (1908.)
Fuller, Geo. D., Ph. D., University of Chicago, Chicago, Ill. (Botany.) (1912.)
*Gates, Frank C., Ph. D., State Agricultural College, Manhattan, Kan. (Botany.) (1908.)
*Gerhard, Wm .J., M. A., Field Museum, Chicago, Ill. (Zoology.) (1908.)
*Grant, U. S., Ph. D., Northwestern University, Evanston, Ill. (Geology.) (1908.)
*Gurley, Wm. F. E., 6151 University Ave., Chicago, Ill. (Paleontology.) (1908.)
Hagler, E. E., M. D., Capitol Ave. and Fourth St., Springfield, Ill. (Oculist.) (1910.)
*Hale, John A., M. D., 117½ W. Ninth St., Los Angeles, Calif. (Medicine.) (1908.)
*Hankinson, Thos. L., B. S., State Normal College, Ypsilanti, Mich. (Zoology.) (1908.)
*Hawthorne, W. C., M. S., Crane Junior College, Chicago, Ill. (Physics.) (1908.)
*Hessler, J. C., Ph. D., Knox College, Galesburg, Ill. (Chemistry.) (1908.)
*Holgate, T. F., Ph. D., LL. D., 617 Library Place, Evanston, Ill. (Mathematics.) (1908.)
*Hoskins, William, 49 Sixth Ave., La Grange, Ill. (Chemistry.) (1908.)
*Hottes, C. F., Ph. D., University of Illinois, Urbana, Ill. (Botany.) (1908.)
Hudelson, C. W., M. S., 206 S. Main St., Normal, Ill. (Agriculture.) (1921.)
*Hunt, Robert I., Decatur, Ill. (Soils.) (1908.)
*Hutton, J. Gladden, M. S., State College, Brookings, S. D. (Agronomy.) (1908.)
Jordan, Edwin O., Ph. D., University of Chicago, Chicago, Ill. (Bacteriology.) (1912.)
*Kneale, Elmer J., Illinois State Register, Springfield, Ill. (Astronomy.) (1908.)
*Knipp, Charles T., Ph. D., University of Illinois, Urbana, Ill. (Phyics.) (1908.)
Kuntz, Jacob, Ph. D., University of Illinois, Urbana, Ill. (Physics.) (1919.)
*Langford, George, B. S., McKenna Process Co., Joliet, Ill. (Paleontology.) (1908.)

Latham, Vida A., M. D., D. D. S., 1644 Morse Ave., Chicago, Ill. (Microscopy.) (1909.)
Lillie, F. R., Ph. D., University of Chicago, Chicago, Ill. (Zoology.) (1912.)
Marshall, Ruth, Ph. D., Rockford College, Rockford, Ill. (Zoology.) (1912.)
McDougall, W. B., Ph. D., University of So. California, Los Angeles, Calif. (Botany.) (1916.)
Miller, G. A., Ph. D., University of Illinois, Urbana, Ill. (Mathematics.) (1910.)
Moffatt, Mrs. Elizabeth M., 1315 Crown Hill Ave., Los Angeles, Calif. (Zoology.) (1916.)
Moffatt, Will S., M. D., 1315 Crown Hill Ave., Los Angeles, Calif. (Botany.) (1912.)
Mohr, Louis, 349 W. Illinois St., Chicago, Ill. (General Interest.) (1909.)
***Noyes, Wm. A.**, Ph. D., LL. D., University of Illinois, Urbana, Ill. (Chemistry.) (1908.)
***Oglevee, C. S.**, Sc. D., Lincoln College, Lincoln, Ill. (Biology.) (1908.)
O'Hara, Fred S., M. D., 509 E. N. Grand Ave., Springfield, Ill. (Medicine.) (1925.)
Payne, Edward W., First State Trust & Savings Bank, Springfield, Ill. (Archaeology.) (1909.)
***Pepoon, H. S.**, M. D., Lake View High School, Chicago, Ill. (Zoology, Botany.) (1908.)
Reagan, Albert B., Ph. D., U. S. Indian Field Service, Ouray, Utah. (Paleontology.) (1921.)
Rentchler, Edna K., B. A., Peabody Normal College, Nashville, Tenn. (Biology.) (1908.)
***Savage, T. E.**, Ph. D., University of Illinois, Urbana, Ill. (Stratigraphic Geology.) (1908.)
Schaffer, David Nicholas, M. D., 603 Main St., Evanston, Ill. (Medicine.) (1925.)
***Shelford, V. E.**, Ph. D., Vivarium Bldg., Wright and Healy Sts., Champaign, Ill. (Zoology, Ecology.) (1908.)
***Slocum, A. W.**, 5549 Dorchester Ave., Chicago, Ill. (Paleontology.) (1908.)
***Smallwood, Mabel E.**, 550 Surf St., Chicago, Ill. (Zoology.) (1908.)
Smith, Mrs. Eleanor C., B. S., 104 Winston Ave., Joliet, Ill. (Biology.) (1919.)
Smith, Frank, Sc. D., 79 Fayette St., Hillsdale, Mich. (Zoology.) (1909.)
***Smith, Isabel Seymour**, Ph. D., 145 Woodland Ave., Oberlin, Ohio. (Botany.) (1908.)
***Smith, Jesse L.**, Supt. of Schools, Highland Park, Ill. (Botany.) (1908.)
***Smith, L. H.**, Ph. D., University of Illinois, Urbana, Ill. (Plant Breeding.) (1908.)
***Spicer, C. E.**, 100 Sherman St., Joliet, Ill. (Chemistry.) (1908.)
***Stillhamer, A. G.**, 705 N. East St., Bloomington, Ill. (Physics.) (1908.)
***Strode, W. S.**, M. D., Lynwood, Calif. (Ornithology.) (1908.)
***Sykes, Mabel**, B. S., South Chicago High School, Chicago, Ill. (General Interest.) (1908.)
Trelease, William, Sc. D., LL. D., University of Illinois, Urbana, Ill. (Botany.) (1909.)
***Turton, Chas. M.**, M. A., 2055 E. 72nd Place, Chicago, Ill. (Physics.) (1908.)
Van Cleave, H. J., Ph. D., University of Illinois, Urbana, Ill. ((Zoology.) (1910.)
Walton, Arthur C., Ph. D., Knox College, Galesburg, Ill. (Zoology.) (1929.)
Ward, Henry B., Ph. D., Sc. D., University of Illinois, Urbana, Ill. (Zoology.) (1910.)
Washburn, E. W., Ph. D., Bureau of Standards, Washington, D. C. (Chemistry.) (1910.)
***Weller, Annie L.**, B. S., Eastern Ill. State Teachers' College, Charleston, Ill. (Geography.) (1908.)
***Winter, S. G.**, M. A., Elmhurst College, Elmhurst, Ill. (Histology.) (1908.)
Zeleny, Charles, Ph. D., University of Illinois, Urbana, Ill. (Experimental Zoology.) (1910.)
***Zetek, James**, M. A., Box 245, Ancon, Panama Canal Zone. (Entomology.) (1908.)

ANNUAL MEMBERS

A

Abbott, T. W., Ph. D., Carbondale, Ill. (Chemistry.) (1930.)
Adams, Harry L., B. Ed., 704 Normal Ave., Normal, Ill. (Geography and Geology.) (1931.)
Adams, H. W., B. S., Normal University, Normal, Ill. (Chemistry.) (1928.)
Adams, Leverett A., Ph. D., University of Illinois, Urbana, Ill. (Zoology.) (1923.)
Adams, Roger, Ph. D., University of Illinois, Urbana, Ill. (Chemistry.) (1926.)
Adams, William A., B. S., 2235 N. 75th Ave., Elmwood Park, Ill. (Archaeology.) (1927.)
Adamstone, Frank B., Ph. D., University of Illinois, Urbana, Ill. (Zoology.) (1926.)
Adler, Herman M., M. D., 2525 Rose Walk, Berkeley, Calif. (Medicine.) (1920.)
Agersborg, H. P. K., Ph. D., Box 266, Virginia Beach, Va. (Zoology.) (1925.)
Albright, Aaron, B. S., 828 Ziegler Ave., Aurora, Ill. (Biology.) (1931.)
Aldrich, Frank W., Ph. D., 1506 E. Washington St., Bloomington, Ill. (Anthropology.) (1925.)
Alexander, Alida, M. A., MacMurray College, Jacksonville, Ill. (Botany.) (1918.)
Allen, Mary L., 903 W. Olive St., Bloomington, Ill. (Home Economics.) (1931.)
Althoff, C. A., B. E., Box 152, DePue, Ill. (Chemistry.) (1930.)
Amelotti, Emil, M. S., James Millikin University, Decatur, Ill. (Mathematics and Physics.) (1931.)
Ames, Edward S., Ph. D., University of Chicago, Chicago Ill. (Psychology.) (1920.)

Anderson, H. W., Ph. D., University of Illinois, Urbana, Ill. (Plant Pathology.) (1930.)
Appleton, L. Estelle, Ph. D., 5704 Kenwood Ave., Chicago, Ill. (Psychology and Anthropology.) (1930.)
Ariens, Otto R., A. B., High School, Mason City, Ill. (Physics.) (1930.)
Armentrout, W. Eugene, 607 S. Main St., Benton, Ill. (Physics, Chemistry.) (1930.)
Armstrong, Christie, A. B., Princeville, Ill. (Geography.) (1921.)
Arn, William G., B. S., Illinois Central Station, I. C. R. R. Co., Chicago, Ill. (Mathematics, Geology, Physics.) (1927.)
Ashman, George C., Ph. D., Bradley Polytechnic Institute, Peoria, Ill. (Chemistry.) (1913.)
Astell, Louis A., A. B., 341 W. Exchange St., Sycamore, Ill. (Physiology, Hygiene.) (1925.)
Audrieth, Ludwig E., University of Illinois, Urbana, Ill. (Chemistry.) (1929.)
Augur, Allison W., M. A., Tilden Technical High School, Chicago, Ill. (Physics.) (1921.)

B

Babcock, Lucy E., Ph. B., 1818 Montvale Ave., Chicago, Ill. (Zoology.) (1930.)
Bacon, Chas. S., Ph. D., M. D., 2333 Cleveland Ave., Chicago, Ill. (Medicine.) (1920.)
Bacon, Joseph B., M. D., Macomb, Ill. (Surgery.) (1929.)
Badger, C. J., B. S., Ewing, Ill. (Soils.) (1929.)
Bailar, John C., M. A., Ph. D., 602 W. Nevada St., Urbana, Ill. (Chemistry.) (1930.)
Bailey, Alfred M., B. A., Director, Chicago Academy of Science, Clark and Center Sts., Chicago, Ill. (General Science.) (1930.)
Bailey, Mrs. Alice Allen, M. S. University of Chicago, Chicago, Ill. (Botany, Pathology.) (1927.)
Bailey, William M., M. S., 701 South Poplar St., Carbondale, Ill. (Botany.) (1921.)
Baker, C. J., B. S., 406 E. Ohio St., Chicago, Ill. (Chemistry.) (1926.)
Balduf, Walter V., Ph. D., University of Illinois, Urbana, Ill. (Entomology.) (1924.)
Ball, John R., Northwestern University, Evanston, Ill. (Geology.) (1929.)
Bamber, Lyle E., M. S., Vivarium Bldg., Champaign, Ill. (Zoology.) (1930.)
Bangs, Edward H., 168 Addison Road, Riverside, Ill. (Agriculture, Electricity.) (1920.)
Barloga, F. L., B. S., 1423 N. Glen Oak, Peoria, Ill. (Ethnology.) (1931.)
Barnes, Cecil, M. A., 1514 First National Bank Bldg., Chicago, Ill. (Physiography.) (1920.)
Barr, D. L., B. Sc., Mt. Pulaski High School, Mt. Pulaski, Ill. (Physics.) (1931.)
Bartlett, R. W., Apt. 9, 106 E. John St., Champaign, Ill. (Economics.) (1929.)
Bastin, Edson S., Ph. D., University of Chicago, Chicago, Ill. (Geology.) (1925.)
Bates, Nellie F., A. B., Champaign High School, Champaign, Ill. (Physics.) (1931.)
Bates, Onward, D. Eng., LL. D., 934 John's Rd., Augusta, Ga. (Civil Engineering.) (1926.)
Bayne, Walter L., D. D. S., Henry, Ill. (Biology.) (1931.)
Beard, Jos. Howard, M. D., University of Illinois, Urbana, Ill. (Medicine, Biology.) (1931.)
Beckner, W. O., M. A., 109 N. Commonwealth Ave., Elgin, Ill. (Geography.) (1931.)
Beerbaum, Arthur J., B. S., M. E., 4910 N. Keeler Ave., Chicago, Ill. (Astronomy.) (1931.)
Behre, Chas. H., Jr., Ph. D., Northwestern University, Evanston, Ill. (Geology.) (1921.)
Bell, Alfred H., Ph. D., State Geological Survey, Urbana, Ill. (Geology.) (1927.)
Bengel, George A., 808 S. Fourth St., Springfield, Ill. (Engineering.) (1925.)
Bennett, Chester W., Ph. D., 827 W. Adams St., Macomb, Ill. (Chemistry.) (1931.)
Bennett, Mary Allison, 623 E. Carroll St., Macomb, Ill. (Zoology.) (1929.)
Bensing, H. Orville, A. B., 111 Missouri Ave., Peoria, Ill. (Chemistry.) (1931.)
Benson, Edmund I., B. S., State Geological Survey, Urbana, Ill. (Geology.) (1931.)
Bergeim, Olaf, Ph. D., 1817 W. Polk St., Chicago, Ill. (Chemistry.) (1928.)
Bevan, Arthur, Ph. D., State Geologist, University, Va. (Geology.) (1923.)
Biehl, H. W., 614 Main St., Peoria, Ill. (Chemistry, Natural History, Microscopy.) (1931.)
Bifoss, Rev. Callistus Gibes, M. A., Quincy College, Quincy, Ill. (Geology.) (1931.)
Bigger, J. H., B. S., 1114 S. Main St., Jacksonville, Ill. (Entomology.) (1925.)
Billow, Clayton O., 1421 Jarvis Ave., Chicago, Ill. (Engineering.) (1931.)
Bishop, S. D., B. S., West Chicago, Ill. (Physics.) (1930.)
Bishop, Samuel M., 326½ W. Adams, Macomb, Ill. (Biology.) (1929.)
Black, Arthur D., M. D., D. D. S., Northwestern University Dental School, Chicago, Ill. (Dentistry.) (1921.)
Black, Clarence J., M. S., Macomb, Ill. (Chemistry.) (1930.)
Black, Henry, 708 S. 4th St., Champaign, Ill. (Anthropology.) (1930.)
Blackstock, Ira B., M. A., 213 E. Jefferson St., Springfield, Ill. (Agriculture.) (1925.)
Blades, James E., Ed. B., High School, Elkville, Ill. (Education.) (1930.)
Blake, Anna M., B. S., 409 W. Willow St., Normal, Ill. (Botany, Physiology.) (1917.)
Blake, Mrs. Tiffany, 1 Stonegate Road, Lake Forest, Ill. (General Interest.) (1921.)
Blanchard, W. O., Ph. D., University of Illinois, Urbana, Ill. (Geography.) (1925.)
Block, Robert G., M. D., 950 E. 59th St., Chicago, Ill. (Medicine.) (1931.)
Blomgren, Walter L., M. D., 3135 N. Paulina St., Chicago, Ill. (Medicine.) (1930.)
Boatman, Archie O., A. M., Carthage College, Carthage, Ill. (Physics.) (1931.)
Bockstahler, Lester I., Ph. D., Northwestern University, Evanston, Ill. (Physics.) (1930.)

Boekwitz, Carroll, High School, Peoria, Ill. (1931.)
Boewe, G. H., B. Ed., 406 E. Stoughton St., Champaign, Ill. (General Science.) (1928.)
Bogusch, Mrs. Ethel M., B. A., 4 College Hall, State College, Pullman, Wash. (Botany.) (1930.)
Bogusch, Edwin R., M. A., State College, Pullman, Wash. (Botany, Geology.) (1929.)
Bohannon, F. C., B. S., Galesburg High School, Galesburg, Ill. (Geography, Geology.) (1924.)
Bonander, Orvar, M. E., 5225 Fulton St., Chicago, Ill. (Engineering.) (1930.)
Bonnar, William, M. D., 666 N. State St., Chicago, Ill. (Psychology.) (1930.)
Bonnell, Clarence, Township High School, Harrisburg, Ill. (Biology.) (1926.)
Boomer, S. E., M. A., 207 Harwood St., Carbondale, Ill. (Physics.) 1921.)
Boos, Mrs. Margaret Fuller, 424 S. Seneca St., Bartlesville, Okla. (Geology.) (1920.)
Boot, G. W., M. D., 813 Sherman Ave., Evanston, Ill. (Medicine, Geology.) (1920.)
Bost, W. D., Phar. D., 318 W. Superior St., Chicago, Ill. (Foods.) (1930.)
Bosworth, Robinson, M. D., Municipal Sanatorium, Rockford, Ill. (Medicine.) (1930.)
Boyer, Walter F., A. M., 349 Selden, Galesburg, Ill. (Psychology, Education.) (1931.)
Bradley, S. Ray, A. B., 707 N. Jefferson St., Robinson, Ill. (Biology.) (1931.)
Breed, Frederick S., Ph. D., School of Education, University of Chicago, Chicago, Ill. (Education.) (1921.)
Bregowsky, Ivan M., 4600 W. Harrison St., Chicago, Ill. (Chemistry, Metallurgy.) (1926.)
Bretz, J Harlen, Ph. D., University of Chicago, Chicago, Ill. (Geology.) (1921.)
Brewer, Irene, B. S., Neoga High School, Neoga, Ill. (Physics.) (1930.)
Brink, William G., Ph. D., Northwestern University, Evanston, Ill. (Psychology.) (1929.)
Britt, Albert, Litt D., President, Knox College, Galesburg, Ill. (General.) (1931.)
Brookley, A. C., Thornton Twp. High School, Harvey, Ill. (Botany, Zoology.) (1930.)
Brown, Agnes, B. A., 1205 W. State St., Rockford, Ill. (Botany.) (1921.)
Brown, C. F. G., M. D., 122 S. Michigan Ave., Chicago, Ill. (Medicine.) (1930.)
Brown, George A., 304 E. Walnut St., Bloomington, Ill. (Education.) (1920.)
Browne, G. Arthur, B. S., Community High School, Lincoln, Ill. (Physics.) (1928.)
Browne, George M., 902 S. Normal St., Carbondale, Ill. (Chemistry.) (1921.)
Brundage, John T., M. A., St. Louis University School of Medicine, 1403 Grand Ave., St. Louis, Mo. (Physiological Chemistry.) (1927.)
Bryan, Thomas J., Ph. D., D. Sc., 4100 Fillmore St., Chicago, Ill. (Chemistry.) (1931.)
Buchholz, John T., Ph. D., University of Illinois, Urbana, Ill. (Botany.) (1930.)
Bulkema, Perry J., A. B., 208 E. Wall St., Morrison, Ill. (Physics.) (1930.)
Bull, R. A., M. A., 541 N. Diversey Parkway, Chicago, Ill. (Metallurgy.) (1930.)
Bullington, Adrian, B. S., 626 Burton Ave., Eureka, Ill. (Biology.) (1931.)
Burgy, J. Herbert, Ph. D., University of Illinois, Urbana, Ill. (Geography.) (1931.)
Burns, Frank S., 828 Fayette St., Peoria, Ill. (Geology, Botany.) (1931.)
Burunjik, May, 730 Third Ave., Havre, Mont. (Botany.) (1930.)
Bussart, Everett J., B. S., Community High School, Wheaton, Ill. (Biology.) (1928.)
Buswell, Arthur M., Ph. D., Chief, State Water Survey, University of Illinois, Urbana, Ill. (Sanitary Chemistry.) (1921.)
Butts, Wilbur K., Ph. D., 711 W. Forest Ave., Decatur, Ill. (Ornithology.) (1930.)
Buzzard, Robert G., M. S., 608 Normal Ave., Normal, Ill. (Geography, Geology.) (1922.)
Byerley, Jacob R., M. S., University High School, Urbana, Ill. (Biology, General Science.) (1931.)

C

Cady, Gilbert H., Ph. D., 504 W. Oregon St., Urbana, Ill. (Geology.) (1929.)
Cahn, Alvin R., Ph. D., University of Illinois, Urbana, Ill. (Zoology.) (1925.)
Caldwell, Delia, M. D., 590 W. Main St., Carbondale, Ill. (Medicine.) (1921.)
Cain, Stanley A., Ph. D., University of Indiana, Bloomington, Ind. (Ecology.) (1931.)
Cameron, E. H., Ph. D., University of Illinois, Urbana, Ill. (Psychology.) (1930.)
Campbell, Ian, M. A., Department of Geology, California Institute of Technology, Pasadena, Calif. (Geology.) (1925.)
Cantwell, Thomas O., 4322 N. Lincoln St., Chicago, Ill. (Medicine, Zoology.) (1929.)
Card, Hamilton H., M. A., Missouri Botanical Gardens, St. Louis, Mo. (Botany.) (1925.)
Carleton, Ralph K., M. A., Shurtleff College, Alton, Ill. (Chemistry.) (1926.)
Carlson, Anton J., Ph. D., University of Chicago, Chicago, Ill. (Physiology.) (1911.)
Carlson, Fred, B. Ed., 5604 Ingleside Ave., Chicago, Ill. (Geography.) (1923.)
Carrick, O. W., B. S., 543 S. Cuyler Ave., Oak Park, Ill. (Chemistry.) (1928.)
Carroll, Don L., B. S., State Geological Survey, Urbana, Ill. (Geology.) (1930.)
Cassidy, Rose M., Maine Twp. High School, Des Plaines, Ill. (General Science.) (1930.)
Cation, Howard D., Blain-Sumner School, Peoria, Ill. (1931.)
Causey, David, Ph. D., University of Arkansas, Fayetteville, Ark. (Biology.) (1922.)
Caven, Jordan, M. A., Rockford College, Rockford, Ill. (Psychology.) (1926.)
Cavins, Harold M., B. S., Charleston, Ill. (Agriculture.) (1929.)
Chandler, S. C., B. S., Carbondale, Ill. (Entomology.) (1921.)
Chappelear, Claude S., Ph. D., Dean, Illinois College, Jacksonville, Ill. (Education.) (1931.)
Chase, V. H., 107 Park Place, Peoria Heights, Ill. (Botany.) (1931.)
Cheddix, J. C., B. Ed., 312 Water St., Normal, Ill. (Chemistry.) (1928.)

Cheronis, Nicholas D., Ph. D., 5558 Ardmore Ave., Chicago, Ill. (Chemistry.) (1930.)
Chester, S. Arthur, B. S., 210½ E. Jefferson St., Bloomington, Ill. (Physics.) (1928.)
Christensen, Norman G., A. B., 565 Orchard Lane, Winnetka, Ill. (Biology.) (1931.)
Clark, Albert H., B. S., 701 S. Wood St., Chicago, Ill. (Chemistry.) (1920.)
Clark, H. Walton, M. A., California Academy of Science, Golden Gate Park, San Francisco, Calif. (Biology.) (1917.)
Clark, John, B. S., 552 Kenilworth Ave., Glen Ellyn, Ill. (Paleontology.) (1929.)
Clement, J. A., University of Illinois, Urbana, Ill. (Biology.) (1929.)
Clements, J. L., M. A., 460 North Cedar, Galesburg, Ill. (Chemistry, Biology.) (1931.)
Cletcher, J. O., M. D., 10 N. Main St., Tuscola, Ill. (Medicine.) (1921.)
Clute, W. N., B. A., Butler University, Indianapolis, Ind. (Botany.) (1918.)
Coats, Ray E., B. Ed., High School, Lewistown, Ill. (Physics.) (1930.)
Coffin, Fletcher B., Ph. D., Lake Forest, Ill. (Physical Chemistry.) (1911.)
Cockrum, A. E., A. B., 214 E. Geneva, West Chicago, Ill. (Chemistry.) (1931.)
Coe, John E., M. S., 2024 Sunnyside Ave., Chicago, Ill. (Zoology.) (1931.)
Coggeshall, Arthur S., Chief, State Museum, Springfield, Ill. (General Science.) (1931.)
Coggeshall, Ruth, B. S., 3927 N. Hamlin Ave., Chicago, Ill. (Biology.) (1924.)
Colby, Arthur S., Ph. D., University of Illinois, Urbana, Ill. (Horticulture.) (1920.)
Colby, Charles C., Ph. D., University of Chicago, Chicago, Ill. (Geography.) (1920.)
Cole, Arthur G., Ph. D., 1817 W. Polk St., Chicago, Ill. (Biochemistry.) (1930.)
Cole, Fay-Cooper, Ph. D., University of Chicago, Chicago, Ill. (Anthropology.) (1927.)
Colin, Edward Cecil, Ph. D., 6122 Ingleside Ave., Chicago, Ill. (Zoology.) (1931.)
Colyer, Frank H., M. S., Southern Illinois State Teachers' College, Carbondale, Ill. (Geography.) (1915.)
Compton, Charles C., Arlington Heights, Ill. (Entomology.) (1930.)
Compton, James S., Eureka College, Eureka, Ill. (General Science.) (1914.)
Conn, G. H., A. M., D. V. M., 1321 W. Stover St., Freeport, Ill. (Physiology.) (1930.)
Constantinides, P. A., Ph. D., 2329 Jackson Blvd., Chicago, Ill. (Physics.) (1930.)
Cook, David L., A. B., Wheaton College, Wheaton, Ill. (Physics.) (1931.)
Cook, Grace L., M. S., 310 Davidson Drive, Champaign, Ill. (Botany.) (1930.)
Coplan, Franklin S., Eureka, Ill. (Biology.) (1931.)
Corbin, Milford H., Ch. E., care of Ault Wiborg Varnish Works, Cincinnati, Ohio. (Chemistry.) (1930.)
Corey, Stephen M., Ph. D., DePauw University, Greencastle, Ind. (Psychology.) (1930.)
Cort, John J., B. A., 1812 Hinman Ave., Evanston, Ill. (Geology.) (1930.)
Coursen, Blair, Ph. B., 761 69th Place, Chicago, Ill. (Ornithology.) (1931.)
Crandle, Ellis R., B. Ed., 509 S. Poplar St., Carbondale, Ill. (Biology.) (1927.)
Crathorne, Arthur R., Ph. D., 602 Pennsylvania Ave., Urbana, Ill. (Mathematics.) (1920.)
Crickmay, Colin H., Ph. D., University of Illinois, Urbana, Ill. (Geology.) (1931.)
Crigler, Elizabeth A., A. B., MacMurray College, Jacksonville, Ill. (Chemistry.) (1931.)
Crompton, Mable, M. S., 217 Normal Ave., Normal, Ill. (Geography.) (1927.)
Cronels, Carey, Ph. D., University of Chicago, Chicago, Ill. (Geology, Paleontology.) (1930.)
Cross, C. L., M. S., 604 Normal Ave., Normal, Ill. (Physics.) (1928.)
Cross, O. H., A. B., High School, Belleville, Ill. (Biology.) (1930.)
Crowe, Albert B., M. A., Eastern Illinois State Teachers' College, Charleston, Ill. (Physics.) (1910.)
Croxton, Orson, B. S., 128 W. Hickory St., Watseka, Ill. (Chemistry.) (1927.)
Crummer, Mrs. Emma C., M. S., 134 S. Kenilworth Ave., Oak Park, Ill. (Botany.) (1925.)
Culbertson, John A., M. S., Homer, Ill. (Geology.) (1931.)
Currens, Frederick H., Ph. D., Western Park, Macomb, Ill. (Chemistry.) (1914.)
Curtis, George M., Ph. D., M. D., University of Chicago, Chicago, Ill. (Anatomy.) (1927.)

D

Daigh, P. H., Cowden, Ill. (General Science.) (1930.)
Danheim, Bertha L., M. S., Township High School, LaSalle, Ill. (Zoology.) (1928.)
Dappert, A. F., 716 Fayette, Springfield, Ill. (Engineering.) (1929.)
Darling, Elton R., Ph. D., Faries Park, Danville, Ill. (Chemistry.) (1920.)
Darrow, Chester W., Ph. D., Institute of Juvenile Research, 907 S. Lincoln St., Chicago, Ill. (Psychology, Physiology.) (1930.)
Davenport, Eugene, LL. D., R. F. D. No. 3, Woodland, Michigan. (Agriculture.) (1910.)
Davis, David J., M. D., Ph. D., 721 Elmwood, Wilmette, Ill. (Bacteriology.) (1930.)
Davis, N. S. III, M. D., 952 N. Michigan Ave., Chicago, Ill. (Medicine.) (1930.)
Dawson, Lyle R., B. Ed., 907 Prince St., Pekin, Ill. (Physics, Chemistry.) (1931.)
Dawson, Marion L., M. S., Willard Hall, Evanston, Ill. (Botany.) (1930.)
Day, William B., Phar. M., 715 S. Wood St., Chicago, Ill. (Botany.) (1927.)
Deam, Chas. C., M. A., 4073 Elliott St., Bluffton, Ind. (Forestry, Flora.) (1921.)
Dean, Ella R., B. Ed., 407 S. Elliott St., Olney, Ill. (Chemistry.) (1921.)
De Lee, Joseph B., M. A., M. D., 5027 Ellis Ave., Chicago, Ill. (Medicine.) (1921.)
De Loach, R. J. H., M. A., 5541 Dorchester Ave., Chicago, Ill. (Botany, Soils, Economics.) (1926.)

Dempster, A. J., Ph. D., University of Chicago, Chicago, Ill. (Physics.) (1921.)
Denninger, Henri S., B. S., 1640 W. Adams St., Chicago, Ill. (Medicine, Anthropology.) (1931.)
De Ryke, Willis, Ph. D., MacMurray College, Jacksonville, Ill. (Biology.) (1927.)
De St. Cyr, William H., D. O., 30 N. Michigan Ave., Chicago, Ill. (Medical Science, Physics.) (1927.)
DeTurk, Ernest E., Ph. D., University of Illinois, Urbana, Ill. (Agriculture.) (1920.)
Dickinson, C. G., M. S., Dundee, Ill. (Geology.) (1930.)
Dickson, Don F., D. Chiro, Lewistown, Ill. (Archaeology.) (1929.)
Diltz, Charles D., A. B., 3121 Fairfield Ave., Fort Wayne, Ind. (Chemistry.) (1921.)
Dimmer, Elizabeth, 2722 N. Kimball Ave., Chicago, Ill. (Botany.) (1929.)
Dodd, Fred O., R. F. D. No. 7, Paris, Ill. (Entomology.) (1929.)
Dodge, Lawrence E., B. S., Community High School, Gillespie, Ill. (Chemistry.) (1926.)
Donnell, Charles A., Chief Meteorologist, U. S. Weather Bureau, 6140 Kimbark Ave., Chicago, Ill. (Meteorology.) (1930.)
Donoghue, James J., 5538 Magnolia Ave., Chicago, Ill. (Chemistry.) (1929.)
Donoghue, Julia O., 5538 Magnolia Ave., Chicago, Ill. (Nature Study.) (1927.)
Donoghue, Mary V., 5538 Magnolia Ave., Chicago, Ill. (Botany.) (1929.)
Downie, Thomas R., 1216 N. Kellogg St., Galesburg, Ill. (Geology.) (1923.)
Downing, Elliot R., Ph. D., 6031 Kimbark Ave., Chicago, Ill. (Zoology.) (1913.)
Dufford, R. T., M. S., University of Missouri, Columbia, Mo. (Physics.) (1918.)
Dummer, Mrs. W. F., 679 N. Michigan Ave., Chicago, Ill. (General Science.) (1931.)
Dungan, George H., Ph. D., University of Illinois, Urbana, Ill. (Plant Physiology.) (1927.)
Dunn, James W., B. S., St. Jacob High School, St. Jacob, Ill. (Psysics.) (1931.)

E

Earle, Clarence A., M. D., Des Plaines, Ill. (Botany.) (1920.)
Eaton, S. H., 1301 9th St., Lawrenceville, Ill. (Botany.) (1929.)
Eaton, Scott Verne, Ph. D., University of Chicago, Chicago, Ill. (Botany.) (1925.)
Eberhart, J. C., 1882 Sheridan Road, Evanston, Ill. (Psychology.) (1930.)
Ebert, Luella Louise, 2235 School St., Chicago, Ill. (Botany.) (1931.)
Eddy, Samuel, Ph. D., University of Minnesota, St. Paul, Minn. (Biology.) (1925.)
Edgecombe, A. E., Ph. D., Northwestern University, Evanston, Ill. (Botany.) (1930.)
Edstrom, E. E., 5838 Dakin St., Chicago, Ill. (Chemistry.) (1929.)
Edwards, G. D., A. B., 2419 Noyes St., Evanston, Ill. (Chemistry.) (1931.)
Edwards, Linden F., Ph. D., Ohio State University, Columbus, Ohio. (Zoology.) (1926.)
Egloff, Gustav, Ph. D., 2120 Strauss Bldg., Chicago, Ill. (General Science.) (1930.)
Ehrman, Edwin H., M. E., 1020 S. Homan Ave., Chicago, Ill. (Physics.) (1920.)
Elch, Alma, A. B., State Geological Survey, Urbana, Ill. (Geography.) (1930.)
Elfrig, C. W. G., 1029 Monroe Ave., River Forest, Ill. (Ornithology, Botany, Zoology.) (1920.)
Ekblaw, Sidney E., M. S., 233 W. Orleans St., Paxton, Ill. (Geology.) (1930.)
Eller, W. H., M. S., State Teachers' College, Macomb, Ill. (Physics.) (1924.)
Elmer, H. E., B. S., 3333 Marshfield Ave., Chicago, Ill. (General Science.) (1930.)
Emerson, Alfred, Ph. D., University of Chicago, Chicago, Ill. (Zoology, Ecology.) (1931.)
Englis, Duane T., Ph. D., University of Illinois, Urbana, Ill. (Chemistry.) (1917.)
Engstrom, Margaret E., 2401 16th Ave., Moline, Ill. (Biology, Geology.) (1930.)
Epstein, Albert K., Sc. B., 5 S. Wabash Ave., Chicago, Ill. (Chemistry.) (1930.)
Epstein, Arthur L., A. B., 303 E. McClure Ave., Peoria, Ill. (Physics.) (1929.)
Ernest, Mary R., 463 W. Decatur St., Decatur, Ill. (Physiology.) (1928.)
Esheiman, H. Clair, M. S., Lee's College, Jackson, Ky. (Chemistry.) (1929.)
Esmaker, John B., M. A., 1076 W. Roosevelt Road, Chicago, Ill. (Physics.) (1926.)
Essenberg, Jacob M., Ph. D., 706 S. Lincoln St., Chicago, Ill. (Anatomy, Zoology.) (1931.)
Evans, Frank N., M. D., 407 S. Seventh St., Springfield, Ill. (Medicine.) (1925.)
Evans, Ward V., Ph. D., Northwestern University, Evanston, Ill. (Chemistry.) (1931.)
Everett, H. S., Ph. D., University of Chicago, Chicago, Ill. (Mathematics.) (1930.)

F

Falanders, Capt. E. W., C. E., 4334 Vista Terrace, Chicago, Ill. (M. D. I.) (1930.)
Farr, C. S., B. S., Eureka, Ill. (Biology.) (1930.)
Faught, Eva E., Dept. of Health, Carbondale, Ill. (Bacteriology.) (1925.)
Faust, Mildred E., M. S., 848 Lancaster Ave., Syracuse, N. Y. (Botany.) (1925.)
Ferguson, Harry F., B. S., Dept. of Public Health, Springfield, Ill. (Sanitary Engineering.) (1925.)
Field, Henry, M. A., Field Museum, Chicago, Ill. (Anthropology.) (1930.)
Fields, Florence, A. B., 301 Nat. Hist. Bldg., Urbana, Ill. (Zoology.) (1930.)
Fillingham, Judith, A. B., 1218 Boadway, Vincennes, Ind. (Zoology.) (1930.)

Finley, Clyde A., M. D., 402 Hill Arcade, Galesburg, Ill. (General.) (1930.)
Finley, C. W., Ph. D., State Teachers' College, Upper Montclair, N. J. (Zoology.) (1910.)
Firth, Helen, 2121 Wall St., Murphysboro, Ill. (Chemistry.) (1930.)
Fisher, D. Jerome, Ph. D., University of Chicago, Chicago, Ill. (Geology.) (1926.)
Flint, Wesley P., M. S., 1006 S. Orchard St., Urbana, Ill. (Entomology.) (1914.)
Foreman, Blye E., B. Ed., Pearl, Ill. (Zoology.) (1927.)
Foster, Dale, B. S., 808 S. Locust St., Champaign, Ill. (Zoology.) (1930.)
Fox, Philip, Adler Planetarium and Astronomical Museum, Chicago, Ill. (Astronomy.) (1930.)
Franing, Edward C., M. D., 404 Bank of Galesburg Bldg., Galesburg, Ill. (Medicine.) (1921.)
Frank, O. D., M. S., University of Chicago, Chicago, Ill. (Biology.) (1918.)
Franklin, George T., 6038 Dorchester Ave., Chicago, Ill. (Chemistry.) (1931.)
Frazier, John C., M. A., 1010 Prairie St., Bloomington, Ill. (Botany.) (1928.)
Freeman, L. K., B. S., Alton High School, Alton, Ill. (Chemistry.) (1930.)
Friedli, F. J., M. S., 149 S. Pennsylvania Ave., Belleville, Ill. (Zoology.) (1928.)
Friesner, Ray C., Ph. D., Butler University, Indianapolis, Ind. (Botany.) (1931.)
Frison, Theodore H., Ph. D., Natural History Survey, University of Illinois, Urbana, Ill. (Entomology, General Biology.) (1917.)
Fryxell, F. M., Ph. D., Augustana College, Rock Island, Ill. (Geology.) (1925.)
Fuller, Melville W., B. A., 512 E. White St., Champaign, Ill. (Geology.) (1931.)
Funk, Donald S., B. A., Sangamo Electric Co., Springfield, Ill. (Physics.) (1925.)
Funk, Ruth S., 209 University Avenue, Champaign, Ill. (Physics, Chemistry.) (1930.)
Furrow, C. L., M. S., Knox College, Galesburg, Ill. (Zoology.) (1930.)

G

Galajikian, A. S., M. S., Knox College, Galesburg, Ill. (Physics.) (1929.)
Galligar, Gladys C., 1819 N. Clinton, Decatur, Ill. (Botany.) (1931.)
Gamble, Faith, 206 Clinton Ave., Oak Park, Ill. (General Science.) (1926.)
Garner, Lloyd P., M. S., 2568 Ester Ave., Chicago, Ill. (Physics.) (1930.)
Garnett, H. W., B. S., Bloomington, Ill. (Chemistry.) (1927.)
Garrison, Lester E., M. S., M. D., 8 S. Michigan Ave., Chicago, Ill. (Medicine.) (1931.)
Gault, B. T., 564 N. Main St., Glen Ellyn, Ill. (Ornithology.) (1910.)
Gault, Robert H., Ph. D., 2332 Bryant Ave., Evanston, Ill. (Psychology.) (1926.)
Gay, A. R., M. A., 444 Winneconna Pky., Chicago, Ill. (Physics.) (1930.)
Gay, Berry Everett, Ph. G., 720 W. Olive St., Decatur, Ill. (Bacteriology.) (1927.)
Geauque, H. A., M. S., Lombard College, Galesburg, Ill. (Chemistry.) (1923.)
George, Melderine, B. S., Flora, Ill. (Home Economics.) (1929.)
Gerald, Sister M., 415 S. Indiana, Kankakee, Ill. (Chemistry.) (1931.)
Gerber, Winfred D., State Water Survey, Urbana, Ill. (Sanitation.) (1930.)
Gersbacher, Willard M., B. Ed., 508 W. Pecan St., Carbondale, Ill. (Zoology.) (1926.)
Getz, Ben W., B. S., Tremont, Ill. (Chemistry.) (1931.)
Givens, Harry V., B. S., Midland Ave., Joliet, Ill. (Biology.) (1927.)
Glafka, Alvin R., A. B., Augusta Community High School, Augusta, Ill. (Biology.) (1931.)
Glatfeld, J. W. E., Ph. D., University of Chicago, Chicago, Ill. (Chemistry.) (1921.)
Glenn, P. A., A. M., M. S., 713 W. Washington St., Urbana, Ill. (Zoology.) (1930.)
Goddard, Calvin, M. D., 469 E. Ohio St., Chicago, Ill. (Ballistics.) (1931.)
Goebel, Ralph N., M. S., 946 4th St., Charleston, Ill. (Chemistry.) (1930.)
Goldstine, Mark T., M. D., Suite 1827, 25 E. Washington St., Chicago, Ill. (Medicine.) (1926.)
Golembiowski, Julian J., M. D., 700 N. Ashland Ave., Chicago, Ill. (Biology.) (1930.)
Gonda, Victor E., M. D., 55 E. Washington St., Chicago, Ill. (Medicine.) (1930.)
Goode, J. Paul, Ph. D., 6227 Kimbark Ave., Chicago, Ill. (Geography.) (1912.)
Gooding, Charles W., A. B., 607 W. Healey St., Champaign, Ill. (Chemistry.) (1931.)
Goodwin, Paul S., A. B., 324 S. 5th St., Effingham, Ill. (Zoology, Physics.) (1930.)
Gorrell, T. J. H., M. D., Chicago Heights, Ill. (Medicine.) (1921.)
Gorseline, Donald E., Ph. D., 107 N. University Ave., Peoria, Ill. (Psychology.) (1931.)
Gossman, Roy J., Ph. B., Hubbard Junior High School, Chicago, Ill. (General.) (1931.)
Gould, H. W., 517 S. 3rd St., DeKalb, Ill. (Chemistry.) (1929.)
Gould, Wm. C., M. A., 625 DeKalb Ave., DeKalb, Ill. (Geography.) (1925.)
Gradle, H. S., M. D., 58 E. Washington St., Chicago, Ill. (Opthalmology.) (1920.)
Graham, Robert, D. V. M., University of Illinois, Urbana, Ill. (Pathology.) (1910.)
Graham, V. O., M. S., 4028 Grace St., Chicago, Ill. (Botany.) (1926.)
Grant, Mrs. Charlotte L., A. M., 829 N. Oakland, Decatur, Ill. (Botany.) (1930.)
Grant, Francis R., 106 E. John St., Champaign, Ill. (General Science.) (1931.)
Gray, William, Presbyterian Hospital, Chicago, Ill. (Pharmacy.) (1930.)
Green, Helen P., B. A., 208 W. Ash St., Normal, Ill. (General Science.) (1927.)
Greenhill, J. P., M. D., 426 E. 51st St., Chicago, Ill. (Embryology.) (1928.)
Greenlee, William B., B. S., 70 Scott St., Chicago, Ill. (Geology, Archaeology.) (1930.)
Greenman, Jesse M., Ph. D., Missouri Botanical Garden, St. Louis, Mo. (Botany.) (1911.)

Greer, Frank E., M. S., 5454 Kimbark Ave., Chicago, Ill. (Bacteriology.) (1927.)
Griffin, J. R., Ph. D., 1308 W. Stoughton St., Urbana, Ill. (Geology.) (1927.)
Griffith, Coleman R., Ph. D., University of Illinois, Urbana, Ill. (Education.) (1929.)
Gronemann, Carl F., 310 N. Liberty St., Elgin, Ill. (Artist, Naturalist.) (1921.)
Grotowski, L., M. D., 3016 Logan Blvd., Chicago, Ill. (Medicine.) (1930.)
Grove, P. F., M. A., 603 E. Ridge St., Mt. Carroll, Ill. (Botany.) (1926.)
Grubbe, Emil H., M. D., Ph. D., 6 N. Michigan Blvd., Chicago, Ill. (Electricity.) (1931.)
Gruber, L. Franklin, D. D., President, Lutheran Theological Seminary, Maywood, Ill. (General Science.) (1930.)
Gueffroy, Edna M., M. A., 207 W. Graham St., Bloomington, Ill. (Geography.) (1928.)
Gunbart, Louis F., 505 S. Randolph St., Macomb, Ill. (Botany.) (1929.)
Gutekunst, Hans, B. S., Batavia High School, Batavia, Ill. (Physics.) (1931.)

H

Haas, Flora A., Ph. D., Arkansas State Teachers' College, Normal Station, Conway, Arkansas. (Botany.) (1925.)
Haas, William H., Ph. D., 1812 Hinman Ave., Evanston, Ill. (Geography.) (1914.)
Hague, Stella M., Ph. D., 907 W. Oregon St., Urbana, Ill. (Botany.) (1929.)
Hair, W. A., A. B., Township High School, Johnston City, Ill. (Biology.) (1930.)
Haideman, William S., M. A., 305 N. Second St., Monmouth, Ill. (Chemistry.) (1928.)
Hall, Henry, M. A., Eldorado Township High School, Eldorado, Ill. (Zoology.) (1928.)
Hall, Lloyd A., 1415 W. 37th St., Chicago, Ill. (Chemistry.) (1930).
Hamilton, Angelina G., M. D., State Hospital, Anna, Ill. (Psychiatry.) (1926.)
Hand, Marion, B. A., Geneseo, Ill. (Biology.) (1930.)
Hanke, Martin, Ph. D., University of Chicago, Chicago, Ill. (Psychology, Chemistry.) (1927.)
Hanks, Mary E., M. D., 307 N. Michigan Ave., Chicago, Ill. (Roentgentherapy.) (1927.)
Harding, Harry A., Ph. D., P. O. Box 834, Detroit, Mich. (Bacteriology.) (1916.)
Hargitt, T. F., Ph. D., Illinois Wesleyan University, Bloomington, Ill. (Physics.) (1928.)
Harnly, John W., 1026 Poplar St., Waukegan, Ill. (Chemistry.) (1929.)
Hartline, Opal C., Norris City Township High School, Norris City, Ill. (Biology.) (1931.)
Hartnack, Hugo, M. V. D., 20 East Jackson Blvd., Chicago, Ill. (Entomology, Toxicology.) (1931.)
Harvey, Ellery H., Ph. D., 6128 Ellis Ave., Chicago, Ill. (Chemistry.) (1930.)
Harvey, Gertrude M., M. S., 407 S. Underhill St., Peoria, Ill. (Chemistry.) (1931.)
Hatfield, E. Frances, M. A., Curran, Ill. (Biology.) (1928.)
Hauswald, Walter E., A. B., 117 E. 7th St., Beardstown, Ill. (Chemistry.) (1931.)
Hawkes, Joseph B., B. A., 761 E. 69th Place, Chicago, Ill. (Botany.) (1925.)
Hay, Logan, B. A., 1220 S. Grand Ave. W., Springfield, Ill. (Mathematics.) (1925.)
Hayes, M. C., Ph. D., 127 John St., DeKalb, Ill. (Psychology.) (1930.)
Hayes, Wm. P., Ph. D., University of Illinois, Urbana, Ill. (Entomology.) (1926.)
Haywood, Ralph, 142 S. Cuyler Ave., Oak Park, Ill. (General Science.) (1930.)
Heck, Florence A., B. S., 79 N. Root St., Aurora, Ill. (Zoology.) (1930.)
Heflin, H. N., M. D., Kewanee, Ill. (Medicine.) (1921.)
Helen, Sister M., St. Patrick High School, Kankakee, Ill. (Biology.) (1931.)
Helmkamp, Ethel, A. B., Dupo High School, Dupo, Ill. (Biology.) (1931.)
Henderson, Mrs. Junius, M. A., 1305 Euclid Ave., Boulder, Colo. (Zoology.) (1911.)
Henderson, Lena B., M. S., Randolph-Macon College, Lynchburg, Va. (Botany.) (1926.)
Hendricks, Nina H. W., M. S., 405 Fifth Ave., Mendota, Ill. (Zoology.) (1927.)
Henkel, H. B., M. D., 401 E. Capitol Ave., Springfield, Ill. (Medicine.) (1925.)
Herrick, C. Judson, Ph. D., University of Chicago, Chicago, Ill. (Anatomy.) (1920.)
Herrick, Julia F., M. A., Mayo Foundation, Rochester, Minn. (Physics.) (1926.)
Herrick, Louise, Roosevelt High School, Chicago, Ill. (Biology.) (1930.)
Herrick, Ruth, M. D., Metz Bldg., Grand Rapids, Michigan. (Zoology.) (1931.)
Herron, James C., M. E., 1417 W. Jackson Blvd., Chicago, Ill. (Illuminating Engineering.) (1926.)
Herskovitz, M. J., Ph. D., 2249 Ridge Ave., Evanston, Ill. (Anthropology.) (1929.)
Hesh, Claude J., B. S., 209 N. Normal, Macomb, Ill. (Geography.) (1929.)
Hieronymus, R. E., LL. D., 109 New Agricultural Bldg., Urbana, Ill. (General Science.) (1926.)
Higley, L. A., Ph. D., Box 776, Wheaton, Ill. (Chemistry.) (1926.)
Hildebrand, L. E., M. A., 1620 Ridge Ave., Evanston, Ill. (Zoology.) (1911.)
Hileman, Allen I., Loda, Ill. (Education, Sociology.) (1930.)
Hill, Joseph H., B. S., 3004 N. Racine Ave., Chicago, Ill. (Chemistry.) (1929.)
Hill, Percy J., B. S., 700 N. 33d St., East St. Louis, Ill. (Chemistry.) (1931.)
Hillebrecht, Herbert E., Ph. G., 5108 Wentworth Ave., Chicago, Ill. (Biology. Chemistry.) (1931.)
Hines, Murray A., Ph. D., 1416 Hinman Ave., Evanston, Ill. (Chemistry.) (1914.)
Hinrichs, Marie A., Ph. D., University of Chicago, Chicago, Ill. (Physiology.) (1926.)

Hockenyos, George L., 1003 W. Oregon St., Urbana, Ill. (Botany.) (1927.)
Hoehn, B. Eva, B. S., 703 S. West St., Carlinville, Ill. (Biology.) (1929.)
Hoff, C. Clayton, A. B., Community High School, Waterman, Ill. (Biology.) (1930.)
Hoffman, Arnold D., S. B., 5541 Hyde Park Blvd., Chicago, Ill. (Geology.) (1931.)
Hoffmann, Frank F., M. D., 3117 Logan Blvd., Chicago, Ill. (Surgery.) (1921.)
Hoheisel, William, B. A., 301 Natural History, University of Illinois, Urbana, Ill. (Zoology.) (1929.)
Holbrook, Elizabeth M., B. S., 1709 N. Main St., Decatur, Ill. (Botany.) (1931.)
Holland, Harold May, A. B., Box 515, Galesburg, Ill. (Ornithology.) (1931.)
Holmes, Harriet F. B. A., S. Batavia Road, Bataiva, Ill. (Plant Pathology.) (1927.)
Holmes, Manfred James, B. L., 703 Broadway, Normal, Ill. (Sociology and Education.) (1920.)
Holmes, Ralph R., M. D., 458 W. 61st, Chicago, Ill. (Astronomy.) (1926.)
Holtz, Frederick C., B. S. Sangamo Electric Company, 1358 Dial Court, Springfield, Ill. (Mathematical Physics.) (1925.)
Honey, Edwin E., Ph. D., Escola Agricola, Piracicabo, Sao Paulo, Brazil, S. A. (Plant Pathology, Botany, Entomology.) (1921.)
Hoogeven, Peter, Morrison High School, Morrison, Ill. (Chemistry.) (1930.)
Hopkins, B. Smith, Ph. D., 706 W. California St., Urbana, Ill. (Inorganic Chemistry.) (1920.)
Horrabin, H. Waldo, 825 W. Carroll, Macomb, Ill. (1930.)
Horrell, C. R., B. S., Sangamo Electric Co., Springfield, Ill. (Electrical Engineering.) (1925.)
Horspool, Geo., 32 S. Cherry, Galesburg, Ill. (Electricity.) (1931.)
Hortin, Harold R., A. B., Assumption High School, Assumption, Ill. (Chemistry.) (1931.)
Hoskins, J. Hobart, Ph. D., University of Cincinnati, Cincinnati, Ohio. (Botany.) (1930.)
Hottes, Frederick C., M. A., James Millikin University, Decatur, Ill. (Biology.) (1929.)
Houdek, Paul, B. S., 710 N. Gross St., Robinson, Ill. (Botany.) (1925.)
Howard, W. V., Ph. D., University of Illinois, Urbana, Ill. (Geology.) (1928.)
Howe, Sister M. Virginia, 617 S. State Ave., Freeport, Ill. (Physics, Biology.) (1929.)
Howland, Arthur L., A. B., Northwestern University, Evanston, Ill. (Geology.) (1930.)
Howowell, A. J., 601 N. School St., Normal, Ill. (1931.)
Huelsen, Walter A., M. S., University of Illinois, Urbana, Ill. (Horticulture.) (1931.)
Urbana, Ill. (Horticulture.) (1931.)
Huey, Walter B., M. D., Elgin, Joliet & Eastern Ry., Joliet, Ill. (Medicine.) (1921.)
Hufford, G. N., B. A., 216 Sesser, Joliet, Ill. (Botany.) (1927.)
Huggett, David Alvin, 127 Chestnut St., Cambridge, Mass. (Medicine.) (1931.)
Hull, G. Thos., Ph. D., American Medical Assn., 535 N. Dearborn St., Chicago, Ill. (Health.) (1921.)
Hungerford, Warren H., 3638 Sheridan Road, Chicago, Ill. (Physics.) (1927.)
Hunter, George W. III, Ph. D., Wesleyan University, Middletown, Conn. (Zoology.) (1928.)

I

Iknayan, Nicholas C., M. D., Charleston, Ill. (Medicine.) (1930.)
Illinois State Library, State House, Springfield, Ill. (1921.)
Isenbarger, Jerome, B. S., 2200 Greenleaf Ave., Chicago, Ill. (Zoology.) (1921.)
Ivy, Andrew Conway, M. S., Ph. D., M. D., 303 E. Chicago Ave., Chicago, Ill. (Physiology.) (1931.)

J

Jane, William T., 7216 Coles Ave., J. Chicago, Ill. (1921.)
Janson, Ardylle A., 636 Church St., Evanston, Ill. (Bacteriology.) (1927.)
Jelliff, Fred R., M. A., Editor, Daily Register-Mail, Galesburg, Ill. (Geology.) (1917.)
Jenks, Ira J., M. S., State Teachers' College, DeKalb, Ill. (Chemistry.) (1922.)
Jensen, Jens, Ravinia, Ill. (Geology, Botany.) (1921.)
Jeths, R. A., M. D., 4256 Lincoln Ave., Chicago, Ill. (Medicine.) (1930.)
Joannides, Minas, M. S., M. D., 3810 Broadway, Chicago, Ill. (Physiology.) (1930.)
Johnson, Charles N., L. D. S., D. D. S., 58 E. Washington St., Chicago, Ill. (Dentistry.) (1930.)
Johnson, Ernest, Illinois College, Jacksonville, Ill. (Biology.) (1930.)
Johnson, George F., 625 Black Ave., Springfield, Ill. (Astronomy.) (1914.)
Johnson, John H., M. A., 8533 S. May St., Chicago, Ill. (Biology.) (1923.)
Johnson, T. Arthur, M. D., 503 Seventh St., Rockford, Ill. (Medicine, Surgery.) (1920.)
Johnson, Warren C., Ph. D., University of Chicago, Chicago, Ill. (Chemistry.) (1930.)
Jones, Elmer, Ph. D., Northwestern University, Evanston, Ill. (Mental Development, Heredity.) (1920.)
Jones, H. I., Ph. D., 1538 Forest Ave., Wilmette, Ill. (Chemistry.) (1930.)
Jones, Lloyd, 614 W. 3rd Ave., Macomb, Ill. (General Science.) (1929.)
Jones, Wellington D., Ph. D., University of Chicago, Chicago, Ill. (Geography.) (1930.)

Jones, William E., A. B., Warren Township High School, Gurnee, Ill. (Biology.) (1930.)
Judd, Charles H., Ph. D., LL. D., University of Chicago, Chicago, Ill. (Education.) (1931.)
Juhn, Mary, Ph. D., University of Chicago, Chicago, Ill. (Experimental Zoology.) (1930.)
Jurica, Hilary S., Ph. D., St. Procopius College, Lisle, Ill. (Botany.) (1922.)

K

Karr, Gertrude, B. A., 207 S. First St., Fairfield, Ill. (Botany.) (1925.)
Karraker, Edward L., Jonesboro, Ill. (Forestry.) (1921.)
Kasel, A. W., Moline High School, Moline, Ill. (Physiography.) (1930.)
Kemp, John E., M. E., 701 E. Prospect St., Kewanee, Ill. (Zoology.) (1930.)
Keller, Kent E., House of Representatives, Washington, D. C. (Economics.) (1931.)
Keller, Wilhelmina, B. Ed., Kenwood Lane, Collinsville, Ill. (Physics.) (1931.)
Kelly, Arthur R., Ph. D., 305 W. Pennsylvania Ave., Urbana, Ill. (Anthropology.) (1931.)
Kempton, F. E., Ph. D., Mt. Union College, Alliance, Ohio. (Plant Pathology.) (1917.)
Kennicott, Ransom, 547 Cook County Bldg., Chicago, Ill. (Forestry.) (1921.)
Kerry, John R., M. A., Grays Lake, Ill. (Physics.) (1931.)
Kersten, Ernest W. A. M., 393 E. Chicago St., Elgin, Ill. (Physics.) (1931.)
Keyes, D. B., Ph. D., University of Illinois, Urbana, Ill. (Chemistry.) (1927.)
Kibbe, Alice L., Ph. D., Carthage College, Carthage, Ill. (Botany.) (1925.)
Kienholz, Aaron Raymond, Ph. D., Osborne Botanical Laboratory, Yale University, New Haven, Conn. (Botany.) (1925.)
Kinhofer, Garma G., A. B., 220 North, Peoria, Ill. (Biology.) (1931.)
Kirby, E. R., B. S., 1101 S. University Ave., Normal, Ill. (Chemistry.) (1928.)
Kirn, George J., Ph. D., D. D., 205 N. Sleight St., Naperville, Ill. (Psychology, Philosophy.) (1923.)
Kline, R. G., M. D., Hoopeston, Ill. (Medicine.) (1921.)
Koch, Fred Conrad, Ph. D., University of Chicago, Chicago, Ill. (Physiological Chemistry.) (1920.)
Koontz, D. Lionel, M. E., 902 Reba Place, Evanston, Ill. (Mechanical Engineering.) (1926.)
Krause, Annemarie E., M. S., 708 Normal, Carbondale, Ill. (Geography.) (1931.)
Krause, Heinrich, D. D. S., 207 W. 18th Place, Chicago, Ill. (Anthropology.) (1926.)
Kremers, H. C., B. S., 222 W. Washington Square, Philadelphia, Penna. (Chemistry.) (1929.)
Krenz, Mathilde H., Ph. D., Adelphi College, Garden City, Long Island, N. Y. (Botany.) (1925.)
Krogman, Wilton M., Ph. D., 229 S. Kenilworth, Oak Park, Ill. (Geology, Anthropology, Paleontology.) * (1930.)
Krout, Maurice H., M. A., 4300 Flournoy St., Chicago, Ill. (Psychology.) (1931.)
Kuh, Sydney, M. D., 8148 Evans Ave., Chicago, Ill. (Medicine.) (1911.)
Kyle, Alfred J., Momence, Ill. (Herpetology.) (1928.)

L

Lahr, E. L., B. S., Taylorville, Ill. (Biology.) (1930.)
Lake, Mae M., B. Ed., 203 Grand Ave., Lincoln, Ill. (Biology.) (1927.)
Lamar, J. Everts, B. S., State Geological Survey, Urbana, Ill. (Geology.) (1924.)
Lambert, Earl L., B. S., 217 N. 1st St., Carthage, Ill. (Botany, Zoology.) (1917.)
Lamkey, Ernest M. R., Ph. D., 505 S. Fell Ave., Normal, Ill. (Botany.) (1928.)
Landon, Robert E., Ph. D., U. S. Geological Survey, Washington, D. C. (Geology.) (1926.)
Lanphier, Robert C., B. Ph., Sangamo Electric Co., Springfield, Ill. (Electricity.) (1914.)
Larson, Karl G., M. S., Augustana College, Rock Island, Ill. (Chemistry, Physics.) (1917.)
Laufer, Berthold, Ph. D., Field Museum, Chicago, Ill. (Archaeology.) (1925.)
Laves, Kurt, Ph. D., University of Chicago, Chicago, Ill. (Astronomy, Mathematics.) (1920.)
Lazareff, Benjamin G., M. F., 515 Briar Place, Chicago, Ill. (Biology.) (1931.)
Lee, Charles D., M. S., Park School of Cleveland, 3325 Euclid Heights Blvd., Cleveland Heights, Ohio. (Geology.) (1931.)
Lee, Oliver J., Dearborn Observatory, Evanston, Ill. (Astronomy.) (1930.)
Leech, Bert S., M. A., Highland Park, Ill. (Biology.) (1927.)
Leighton, Morris M., Ph. D., Chief, State Geological Survey, Urbana, Ill. (Geology.) (1920.)
Leighty, John A., A. B., 361 W. Packard St., Decatur, Ill. (Chemistry.) (1931.)
Lepley, Ray, Ph. D., 407 S. Underhill St., Peoria, Ill. (Education.) (1931.)
Leppard, Henry M., Ph. D., University of Chicago, Chicago, Ill. (Geography.) (1930.)
Levinson, S. A., M. D., University of Illinois, College of Medicine, Chicago, Ill. (Medicine.) (1930.)
Lewis, Howard B., Ph. D., Medical School, University of Michigan, Ann Arbor, Mich. (Physiology, Chemistry.) (1920.)

Lewis, Julian H., Ph. D., University of Chicago, Chicago, Ill. (Pathology.) (1921.)
Linder, O. A., 208 N. Wells St., Chicago, Ill. (General Science.) (1910.)
Lineburg, Bruce F., Ph. D., Lake Forest College, Lake Forest, Ill. (Biology.) (1930.)
Link, George K. K., Ph. D., University of Chicago, Chicago, Ill. (Plant Pathology.) (1930.)
Link, Theodore A., Ph. D., Geology Dept., Imperial Oil, Ltd., Calgary, Alberta, Canada. (Geology.) (1926.)
Linkins, R. H., M. A., 706 Broadway, Normal, Ill. (Zoology.) (1917.)
List, E. E., M. S., 3008 Edwards St., Alton, Ill. (Biology, Geology.) (1930.)
Lockie, G. D., M. D., 1st National Bank Bldg., Springfield, Ill. (Archaeology.) (1927.)
Lodeski, Frank J., Jr., B. S., 202 S. Harvey Ave., Oak Park, Ill. (Physics.) (1931.)
Lodge, Fred S., B. S., 423 Stone Ave., LaGrange, Ill. (Zoology, Agricultural Chemistry.) (1926.)
Lodge, W. E., Monticello, Ill. (General Science.) (1931.)
Logan, F. G., LL. D., 1150 Lake Shore Drive, Chicago, Ill. (General Science.) (1930.)
Logan, Hay, B. A., 1220 S. Grand Ave., Springfield, Ill. (Mathematics.) (1927.)
Logsdon, Mrs. M. I., Ph. D., 6030 Greenwood Ave., Chicago, Ill. (Mathematics.) (1923.)
Long, H. J., Ph. D., Greenville, Ill. (Chemistry.) (1930.)
Longbons, Elizabeth, B. S., 2 E. Walnut, Harrisburg, Ill. (Chemistry.) (1925.)
Longden, A. C., Ph. D., Knox College, Galesburg, Ill. (Physics.) (1917.)
Loomis, F. W., Ph. D., University of Illinois, Urbana, Ill. (Physics.) (1930.)
Luce, W. B., Ph. D., 1010 W. Springfield Ave., Urbana, Ill. (Zoology.) (1931.)
Luckhardt, Arno B., Ph. D., M. D., 5216 Greenwood Ave., Chicago, Ill. (Psychology, Medicine.) (1930.)
Luckhaupt, Fannie M., A. B., 1511 S. 6th St., Marshall, Ill. (Biology.) (1931.)
Lukens, Herman T., Ph. D., Francis Parker School, Chicago, Ill. (Geography.) (1920.)
Lutes, Neil, B. S., 1595 Atlantic St., Dubuque, Iowa. (Chemistry.) (1912.)
Lyon, William L., 124 Washington, Waukegan, Ill. (Ornithology.) (1926.)

M

Maas, W. T., B. Ed., High School, Dupo, Ill. (Chemistry.) (1930.)
MacDowell, Charles H., Sc. D., 111 W. Jackson Blvd., Chicago, Ill. (Chemistry.) (1926.)
Mackie, Arthur D., 400 E. Monroe St., Springfield, Ill. (Electricity.) (1915.)
MacMillan, William D., Ph. D., University of Chicago, Chicago, Ill. (Astronomy.) (1922.)
Madison, William D., M. D., Eureka, Ill. (Medicine.) (1921.)
Magill, Guy N., B. S., Louisville High School, Louisville, Ill. (Chemistry.) (1931.)
Magill, Henry P., 175 W. Jackson Blvd., Chicago, Ill. (Geology, Sociology, Finance.) (1920.)
Magnusson, John P., Ph. D., Augustana College, Rock Island, Ill. (Chemistry.) (1931.)
Mahle, Arthur E., M. D., 55 E. Washington St., Chicago, Ill. (Medicine.) (1930.)
Main, Helen, B. S., Gladstone Hotel, Chicago, Ill. (Botany.) (1927.)
Malek, George T., A. B., Wilmington High School, Wilmington, Ill. (Geology.) (1931.)
Malinovsky, A., B. S., Washington Iron Works, Los Angeles, Calif. (Chemistry.) (1920.)
Mann, A. L., M. D., Box 106, Elgin, Ill. (Medicine.) (1921.)
Mann, Jessie R., B. S., State Teachers' College, DeKalb, Ill. (Biology.) (1923.)
Markus, H. C., B. A., University of Illinois, Urbana, Ill. (Zoology, Geology.) (1926.)
Marlar, Mabel, A. B., Casey, Ill. (Biology.) (1930.)
Marston, Leslie R., Ph. D., President, Greenville College, Greenville, Ill. (Psychology.) (1930.)
Martin, Frances S., 1327 N. College St., Decatur, Ill. (Biology.) (1930.)
Martin, George W., Ph. D., Washington and Jefferson College, Washington, Pa. (Biology.) (1923.)
Martin, Paul S., Ph. D., Field Museum, Chicago, Ill. (Anthropology.) (1931.)
Marvel, Carl S., Ph. D., University of Illinois, Urbana, Ill. (Chemistry.) (1927.)
Mason, Arthur J., Homewood, Ill. (General Science.) (1921.)
Mason, Carol Y., M. A., Milwaukee Downer College, Milwaukee, Wis. (Geography, Botany.) (1926.)
Mayfield, John C., A. M., University High School, University of Chicago, Chicago, Ill. (Biology.) (1931.)
Maynard, M. M., M. A., Monmouth College, Monmouth, Ill. (Psychology, Education.) (1927.)
McAllister, Abel J., B. S., B. Ped., 2118 W. 109th St., Chicago, Ill. (Education.) (1931.)
McAvoy, Blanche, M. A., 206 S. Main St., Normal, Ill. (Chemistry.) (1928.)
McCabe, Louis C., B. S., State Geological Survey, Urbana, Ill. (Geology.) (1931.)
McClenahan, Francis M., Monmouth College, Monmouth, Ill. (Physics, Geology.) (1930.)

McClelland, Kellogg D., A. M., Knox College, Galesburg, Ill. (General Science.) (1931.)
McClure, Perry S., A. B., State Geological Survey, Urbana, Ill. (Geology.) (1931.)
McClure, S. M., M. S., McKendree College, Lebanon, Ill. (Chemistry.) (1931.)
McCormick, Robert N., M. S., Ball State Teachers' College, Muncie, Ind. (Zoology.) (1929.)
McCoy, Herbert N., Ph. D., 1226 Westchester Place, Los Angeles, Calif. (Chemistry.) (1914.)
McCulloch, E. C., D. V. M., Box 55, Auburn, Alabama. (Parisitology.) (1927.)
McDavitt, Neva, B. Ed., 608 Normal Ave., Normal, Ill. (Geography.) (1925.)
McEvoy, S. Aleta, B. S., Rockford High School, Rockford, Ill. (Chemistry.) (1923.)
McGinnis, Helen A., B. S., 6400 S. Maplewood Ave., Chicago, Ill. (General Science.) (1923.)
McKee, W. A., D. D. S., East Side Square, Benton, Ill. (General Science.) (1922.)
McMaster, Archie J., M. S., 1800 Grace St., Chicago, Ill. (Physics, Chemistry.) (1922.)
McMullen, Donald B., Monmouth College, Monmouth, Ill. (Biology.) (1930.)
Means, Margaret, A. M., 516 S. Clayton St., Bloomington, Ill. (Geography.) (1931.)
Melrose, James A., Ph. D., James Millikin University, Decatur, Ill. (Psychology.) (1931.)
Merwin, Bruce W., Ph. D., Southern Illinois State Normal University, Carbondale, Ill. (Education, Anthropology.) (1930.)
Messenger, Helen R., A. M., Northern Illinois State Teachers' College, DeKalb, Ill. (Education.) (1931.)
Metcalf, C. L., Ph. D., University of Illinois, Urbana, Ill. (Entomology.) (1925.)
Mettler, L. Harrison, A. M., M. D., 1119 Sheridan Road, Hubbard Woods, Ill. (1931.)
Michaels, Walter H., Ph. D., University of Illinois, Urbana, Ill. (Plant Physiology.) (1929.)
Miller, Clemmy O., Ph. D., 511 E. 60th St., Chicago, Ill. (Chemistry.) (1931.)
Miller, Isiah L., M. A., State College Station, Brookings, S. D. (Mathematics, Chemistry.) (1920.)
Miller, J. W., M. S., State Department of Agriculture, Springfield, Ill. (Botany.) (1931.)
Miller, R. B., M. F., 121 Capitol Bldg., Department of Conservation, Springfield, Ill. (Forestry, Ecology.) (1920.)
Miller, Sylvester, B. S., 1344 Garfield Ave., Aurora, Ill. (Physics.) (1931.)
Millington, Berton R., M. A., 1812 Hinman Ave., Evanston, Ill. (Geology.) (1931.)
Milum, Vern G., Ph. D., University of Illinois, Urbana, Ill. (Agriculture.) (1928.)
Mitchell, Catherine, B. A., 144 Fairbank Road, Riverside, Ill. (Botany, Ornithology.) (1925.)
Mitchell, David R., M. S., University of Illinois, Urbana, Ill. (General Science.) (1931.)
Mitchell, William C., D. V. S., 1162 E. Main St., Galesburg, Ill. (General Science.) (1931.)
Mohler, Charles E., 2106 15th St., Moline, Ill. (Geology.) (1930.)
Mohr, Carl O., M. A., University of Illinois, Urbana, Ill. (Zoology.) (1930.)
Monack, A. J., M. S., University of Illinois, Urbana, Ill. (Engineering, Chemistry.) (1930.)
Mongerson, Oscar, B. S., Supt. of Schools, Chenoa, Ill. (Physics.) (1925.)
Montgomery, C. E., Ph. D., 512 College Ave., DeKalb, Ill. (Biology.) (1917.)
Moore, Allen R., A. B., 3424 Kenilworth Ave., Berwyn, Ill. (Physics.) (1931.)
Moore, Mrs. Susan P., M. D., 20 E. Huron St., Chicago, Ill. (Biology.) (1930.)
Moore, W. W., B. Agric., R. F. D., Rushville, Ill. (Agriculture.) (1929.)
Moorehead, Warren K., Sc. D., Phillips Academy, Andover, Mass. (Anthropology.) (1929.)
Morgan, John J. B., Ph. D., Northwestern University, Evanston, Ill. (Psychology.) (1926.)
Morgenstern, Edward M., 2710 Jackson Blvd., Chicago, Ill. (Physiology.) (1929.)
Mortimer, F. S., Ph. D., Illinois Wesleyan University, Bloomington, Ill. (Chemistry.) (1928.)
Moulton, C. Robert, Ph. D., 5712 Kenwood Ave., Chicago, Ill. (Chemistry.) (1926.)
Moulton, Forest Ray, Ph. D., 327 S. LaSalle St., Chicago, Ill. (Astronomy.) (1912.)
Moyer, Edward L., M. A., 870 Jefferson St., Galesburg, Ill. (Psychology.) (1931.)
Mueller, Harry E., B. S., Box 244, Salem, Ill. (Chemistry.) (1930.)
Mumford, Herbert W., D. Agric., University of Illinois, Urbana, Ill. (Agriculture.) (1910.)
Murray, A. N., Ph. D., 2432 E. 8th St., Tulsa, Okla. (Geology.) (1926.)
Murray, Sister Mary Samuels, 856 W. Garfield Blvd., Chicago, Ill. (Physics.) (1928.)
Muskat, Irving E., Ph. D., University of Chicago, Chicago, Ill. (Chemistry.) (1931.)
Mylius, L. A., M. E., 1711 Exchange National Bank, Tulsa, Okla. (Geology.) (1921.)

N

Nadler, Walter H., M. D., 30 N. Michigan Ave., Chicago, Ill. (Medicine.) (1921.)
Nash, Edna L., B. A., 220 College Ave., DeKalb, Ill. (Geography.) (1927.)
Neal, John R., Ph. D., M. D., 609 S. Walnut St., Springfield, Ill. (Medicine, Public Health.) (1930.)
Neave, S. L., M. A., Kyoquot, Vancouver Island, B. C., Canada. (Chemistry.) (1926.)
Neckers, J. W., Ph. D., Carbondale, Ill. (Chemistry.) (1930.)
Needham, Claude E., B. S., University Hall, Evanston, Ill. (Geology.) (1929.)
Neifert, Ira E., M. S., Knox College, Galesburg, Ill. (Chemistry.) (1917.)
Nelson, Blanche, Illinois State Normal University, Normal, Ill. (Physics.) (1931.)
Nelson, C. Z., 534 Hawkinson Ave., Galesburg, Ill. (Botany.) (1917.)
Nelson, Emil A., M. E., 1126 S. Seventh St., Springfield, Ill. (Engineering.) (1924.)
Neureiter, Paul Richard, Ph. D., Western Illinois State Teachers' College, Macomb, Ill. (Chemistry.) (1928.)
Nevens, W. B., Ph. D. ,University of Illinois, Urbana, Ill. (Nutrition.) (1930.)
Neville, Russell T., B. S., Kewanee, Ill. (Geology.) (1929.)
Newcomb, Rexford, M. Arch., University of Illinois, Urbana, Ill. (Engineering, Architecture.) (1930.)
Newell, M. J., M. A., 2226 Hartzell St., Evanston, Ill (Education.) (1920.)
Newman, Horatio H., Ph. D., University of Chicago, Chicago, Ill. (Zoology.) (1912.)
Nicholson, F. M., M. D., 5 N. Wabash Ave., Chicago, Ill. (Anatomy.) (1912.)
Noe, Adolf C., Ph. D., University of Chicago, Chicago, Ill. (Botany.) (1923.)
Norbury, Frank P., A. M., M. D., 1631 Mound Ave., Jacksonville, Ill. (Medicine.) (1930.)
Nothstein, Rev. I. O., A. M., D. D., Augustana College, Rock Island, Ill. (Natural History.) (1930.)
Noyes, Frederick B., D. D. S., College of Dentistry, University of Illinois, 1338 W. Harrison St., Chicago, Ill. (Dentistry.) (1930.)
Noyes, Helen M., A. M., Carthage College, Carthage, Ill. (Chemistry.) (1930.)
Noyes, W. Albert, Jr., Sc. D., Brown University, Providence, R. I. (Chemistry.) (1925.)
Nutall, Mrs. Olive, B. S., Springfield High School, Springfield, Ill. (Botany.) (1928.)

O

Obenchain, Jeanette B., M. D., University of Chicago, Chicago, Ill. (Anatomy.) (1921.)
Oesterling, H. C., B. A., 611 Ohio St., Urbana, Ill. (Ecology.) (1928.)
Ogilvy, Robert S., B. Arch., 411 Taylor Ave., Glen Ellyn, Ill. (Architecture.) (1921.)
O'Hanlon, Sister Mary Ellen, Ph. D., Rosary College, River Forest, Ill. (Biology.) (1928.)
Oliver, N. E., M. D., Thornton, Ill. (General Science.) (1930.)
Olson, Hazel, M. S., MacMurray College, Jacksonville, Ill. (Zoology.) (1930.)
Olsson, Harry L., B. A., 103 Haven Road, Elmhurst, Ill. (Chemistry.) (1931.)
Open Court Publishing Co., 337 E. Chicago Ave., Chicago, Ill. (1930.)
Oppitz, Louis K., Ph. D., McKendree College, Lebanon, Ill. (Physics.) (1931.)
Orndoff, Benjamin H., M. D., 2561 N. Clark St., Chicago, Ill. (Radiology.) (1931.)
O'Rourke, Joseph M., M. A., 7016 Rhodes Ave., Chicago, Ill. (Physics.) (1931.)

P

Pacini, August J., 9 S. Clinton St., Chicago, Ill. (Photochemistry.) (1931.)
Packard, W. H., Ph. D., Bradley Polytechnic Institute, Peoria, Ill. (Biology.) (1909.)
Paddock, Walter R., M. D., 904 State St., Lockport, Ill. (Medicine.) (1921.)
Paintin, Mrs. Ruth D., 635 Park Ave., Wilmette, Ill. (Botany.) (1928.)
Palm, Bjorn Torvald, Ph. D., University of Illinois, Urbana, Ill. (Botany.) (1931.)
Palmer, Claude Irwin, A. B., 6440 Greenwood Ave., Chicago, Ill. (Mathematics.) (1931.)
Pampel, Claude Earl, B. Ed., Flanagan, Ill. (Biology.) (1931.)
Park, Andrew R., 308 Romine St., Urbana, Ill. (Entomology.) (1930.)
Parmenter, Clarence E., Ph. D., 5700 Blackstone, Chicago, Ill. (General Science.) (1931.)
Parr, Rosalie M., Ph. D., 321 Chemistry Laboratory, University of Illinois, Urbana, Ill, (Chemistry.) (1926.)
Paton, Robert F., Ph. D., 1005 S. Busey Ave., Urbana, Ill. (Physics.) (1928.)
Patterson, Amos M., 1710 Main St., Peoria, Ill. (Chemistry.) 1931.)
Patterson, Bryan, Vertebrate Paleontologist, Field Museum of Natural History, Chicago, Ill. (Paleontology.) (1931.)
Patterson, Cecil F., Ph. D., University of Saskatchewan, Saskatoon, Can. (Botany.) (1920.)
Patton, Charles, M. D., 612 Meyers Bldg., Springfield, Ill. (Medicine.) (1925.)
Pease, Rollin B., B. A., 133 Cobb Ave., Decatur, Ill. (Geology.) (1931.)
Pease, Una J., B. S., 315 Downer Place, Aurora, Ill. (Biology.) (1931.)
Peic, Joseph J., Ph. D., 2519 S. Crawford Ave., Chicago, Ill. (Chemistry.) (1930.)
Pelluet, Dixie, M. A., Ph. D., Rockford College, Rockford, Ill. (Ecology, Cytology.) (1931.)

Penney, Mark E., Ph. D., 501 Plymouth Court, Chicago, Ill. (Psychology.) (1926.)
Petefish, Charles, B. A., N. Main St., Winchester, Ill. (Biology.) (1928.)
Peterson, Oliver H., M. A., 2049 E. 67th St., Chicago, Ill. (Psychology.) (1928.)
Pfanstiehl, Carl, Wood Path Ave., Highland Park, Ill. (Physics and Chemistry.) (1926.)
Phelps, Lillian E., B. S., Golconda, Ill. (Physics.) (1926.)
Phelps, Walter S., D. D. S., 57 Public Square, Monmouth, Ill. (Mycology.) (1925.)
Philbrook, Leman Kenneth, B. S., St. Elmo, Ill. (Chemistry.) (1931.)
Phillips, J. B., A. B., A. M., 805 S. 5th St., Pekin, Ill. (Chemistry.) (1931.)
Phillips, Marie Lynette, B. S., 402 E. Grove St., Bloomington, Ill. (Physiology.) (1931.)
Pius, Brother, A. B., 6501 Clayton Road, St. Louis, Mo. (Chemistry.) (1931.)
Plapp, Frederick William, M. S., 4140 N. Keeler Ave., Chicago, Ill. (Botany, Geology.) (1922.)
Platt, Fred R., Ph. B., 6333 Blackstone Ave., Chicago, Ill. (Botany.) (1931.)
Platt, R. S., Ph. D., University of Chicago, Chicago, Ill. (Geography.) (1921.)
Plummer, F. B., 608 W. 7th St., Austin, Texas. (Geology.) (1926.)
Plummer, Mrs. Helen J., 608 W. 7th St., Austin, Texas. (Geology.) (1926.)
Poggi, Edith Muriel, Ph. D., 1201 W. Oregon St., Urbana, Ill. (Geography.) (1931.)
Pollock, Milton D., M. D., 606 Standard Life Bldg., Decatur, Ill. (Medicine and Surgery.) (1920.)
Pollock, Roscoe C., M. S., 407 S. Dearborn St., Chicago, Ill. (General Science.) (1931.)
Poppen, Hero Tjarks (Jr.), A. B., 2911 Western Ave., Peoria, Ill. (Chemistry.) (1931.)
Posta, Frank, M. D., 2434 S. Crawford Ave., Chicago, Ill. (Coleoptera.) (1931.)
Potter, Franklin C., B. S., 5742 Drexel Ave., Chicago, Ill. (Geography.) (1929.)
Potter, Jessie, Parker Sr. High School, Chicago, Ill. (General Science.) (1930.)
Potthoff, Edward F., Ph. D., University of Illinois, Urbana, Ill. (Psychology.) (1930.)
Powers Wm. E., Ph. D., University Hall, Evanston, Ill. (Geology.) (1929.)
Pratt, Alice Evelyn, 5856 Kenmore Ave., Chicago, Ill. (Botany.) (1931.)
Prehn, Mrs. Paul, 106 E. John St., Champaign, Ill. (Chemistry.) (1929.)
Preveden, Francis Ralph, Ph. D., 6455 Ellis Ave., Chicago, Ill. (Linguistics.) (1931.)
Prucha, Marie A., S. B., 2530 S. Clifton Park Ave., Chicago, Ill. (Botany.) (1930.)

Q

Quill, Lawrence L., Ph. D., 805 W. Illinois St., Urbana, Ill. (Chemistry.) (1928.)
Quiring, Daniel Paul, M. A., 2444 Woodmere Drive, Cleveland Heights, Cleveland, Ohio. (Zoology.) (1929.)
Quirke, Terence T., Ph. D., University of Illinois, Urbana, Ill. (Geology.) (1921.)

R

Radcliffe, H. H., M. S., 1346 W. Macon St., Decatur, Ill. (Physics, Chemistry.) (1909.)
Rademacher, E. E., Nokomis, Ill. (Chemistry and Botany.) (1931.)
Rae, William H., 231 Pine St., Peoria, Ill. (Physics.) (1931.)
Rah, Joseph, M. E., E. E., 2437 Fulton St., Chicago, Ill. (Physics.) (1930.)
Railsback, Ora L., M. A., State Teachers' College, Charleston, Ill. Physics.) (1928.)
Rambo, Jessie E., M. A., 208 W. Irving Ave., Normal, Ill. (Chemistry.) (1928.)
Ransom, James H., Ph. D., James Millikin University, Decatur, Ill. (Chemistry.) (1923.)
Rathman, Franz H., M. A., James Millikin University, Decatur, Ill. (Chemistry.) (1930.)
Rathmell, Vernice, 5879 N. Kolmar Ave., Chicago, Ill. (Biology.) (1930.)
Ream, Robert S., B. S., 829 Foster St., Evanston, Ill. (Chemistry, Physics.) (1931.)
Reeder, C. A., Principal of School, Oakdale, Ill. (Botany, Zoology.) (1930.)
Reedy, John H., Ph. D., University of Illinois, Urbana, Ill. (Chemistry.) (1931.)
Renkenberger, Melvin D., A. B., 608 W. Jasper, Joliet, Ill. (Biology.) (1931.)
Rew, Irwin, B. A., 217 Dempster St., Evanston, Ill. (General Science.) (1920.)
Reymert, Martin L., Ph. D., Director of Research, Mooseheart Laboratory for Child Research, Mooseheart, Ill. (Psychology.) (1931.)
Rice, William F., M. A., 3032 Washington Blvd., Sta. D., Chicago, Ill. (Physics.) (1909.)
Rich, Franklin A., B. Ed., Bunker Hill, Ill. (Biology.) (1931.)
Richards, Mary L., B. S., Brighton, Ill. (Chemistry.) (1931.)
Richardson, Baxter K., B. A., Dept. of Public Health, Springfield, Ill. (Public Health.) (1921.)
Richardson, Robert E., M. A., Box 396, Station A., Champaign, Ill. (Zoology.) (1910.)
Richarz, Stephan, Ph. D., St. Mary's College, Techny, Ill. (Geology.) (1930.)
Riggs, Elmer S., M. A., Field Museum, Chicago, Ill. (Paleontology.) (1931.)
Rinker, Jacob A., B. S., Eureka, Ill. (Physics.) (1923.)
Roberts, Elmer, Ph. D., University of Illinois, Urbana, Ill. (Genetics.) (1927.)
Roberts, Rosalind, 311 W. Main St., Carbondale, Ill. (Geology.) (1931.)
Robertson, Walter E., 4445 Berkeley, Chicago, Ill. (Cosmography.) (1930.)
Roe, Walter B., B. S., 702 S. Race St., Urbana, Ill. (Geology.) (1931.)
Rolfe, Mrs. Ethlyn Potter, 825 Ayars Place, Evanston, Ill. (Geology.) (1929.)
Romer, Alfred S., Ph. D., University of Chicago, Chicago, Ill. (Paleontology.) (1925.)

Root, Clarence J., U. S. Weather Bureau, Springfield, Ill. (Climatology.) (1913.)
Rosborough, Paul A., M. D., 753 E. 79th St., Chicago, Ill. (Medicine.) (1930.)
Rose, Dorothy E., B. S., State Geological Survey, Urbana, Ill. (Geology.) (1928.)
Rose, W. C., Ph. D., University of Illinois, Urbana, Ill. (Chemistry.) (1924.)
Ross, Herbert H., B. S., Natural History Survey, Urbana, Ill. (Entomology.) (1928.)
Ross, Robert, M. A., British Consulate General, 360 N. Michigan Ave., Chicago, Ill. (Microscopy.) (1931.)
Royce, Bertha M., M. A., 204 N. School St., Normal, Ill. (Zoology.) (1927.)
Ruhm, Herman D., B. E., Virginia Hotel, Chicago, Ill. (Agriculture, Chemistry.) (1931.)
Russell, J. B., B. A., F. A. S., Peoria Life Insurance Co., Peoria, Ill. (Mathematics, Physics, Geology, Astronomy.) (1931.)
Ryan, Everett L., A. B., Belvidere High School, Irene, Ill. (Biology.) (1930.)

S

Sadler, William S., M. D., 533 Diversey Parkway, Chicago, Ill. (Medicine.) (1930.)
Sakenmiller, Vera M., B. Ed., 1007 S. Low St., Bloomington, Ill. (Biology.) (1927.)
Salter, Allen, M. D., Lena, Ill. (Medicine.) (1920.)
Sammis, J. H., B. S., 207 Crescent, Peoria, Ill. (Chemistry.) (1929.)
Sampson, H. C., Ph. D., Ohio State University, Columbus, Ohio. (Botany.) (1912.)
Saphir, Otto, M. D., Michael Reese Hospital, Illinois Medical School, Chicago, Ill. (Pathology.) (1931.)
Sappington, Clarence O., M. D., 20 N. Wacker Drive, Chicago, Ill. (Industrial Hygiene.) (1931.)
Saunders, Harold F., 10744 Calumet Ave., Chicago, Ill. (Chemistry, Psychology.) (1930.)
Sawyer, L. E., B. S. F., 506 W. Elm St., Urbana, Ill. (Forestry.) (1930.)
Schaar, B. E., Ch. E., 556 W. Jackson Blvd., Chicago, Ill. (Chemistry.) (1930.)
Schantz, Orpheus M., Room 521, 137 S. LaSalle St., Chicago, Ill. (Ornithology, Botany.) (1920.)
Schaub, Edward L., Ph. D., Northwestern University, Evanston, Ill. (Pychology.) (1920.)
Schertz, Ray J., B. A., Township High School, Metamora, Ill. (Chemistry.) (1928.)
Schmidt, Karl P., B. A., 1751 Cedar Road, Homewood, Ill. (Zoology.) (1931.)
Schmidt, Otto L., M. D., 5 S. Wabash Ave., Chicago, Ill. (History.) (1921.)
Schmidt, Richard E., 113 Bellevue Place, Chicago, Ill. (Astronomy.) (1931.)
Schmoll, Hazel M., M. S., Ward, Colo. (Botany.) (1921.)
Schulhof, Kamil, M. D., 7216 Coles Ave., Chicago, Ill. (Medicine, Biology.) (1930.)
Schultz, Henry, Ph. D., University of Chicago, Chicago, Ill. (Economics.) (1930.)
Schultz, John R., B. A., Lanark, Ill. (Geology.) (1931.)
Schulz, William F., Ph. D., University of Illinois, Urbana, Ill. (Physics.) (1910.)
Schwartz, Daphne, Bradley Polytechnic Institute, Peoria, Ill. (1931.)
Schwartzberg, Benjamin, M. S., Division of Food and Dairies, Illinois Dept. of Agriculture, 1046 Transportation Bldg., Chicago, Ill. (Bacteriology.) (1926.)
Sciarretta, Sylvio A., M. D., 55 E. Washington St., Chicago, Ill. (Medicine.) (1930.)
Scott, Harold W., A. B., 1630 W. Division St., Chicago, Ill. (Geology.) (1931.)
Scott, Martha, M. S., Normal University, Carbondale, Ill. (Biology.) (1930.)
Scovill, H. T., University of Illinois, Urbana, Ill. (Economics.) (1931.)
Scruggs, Walter, B. Ed., 124 Polk St., Charleston, Ill. (Zoology.) (1930.)
Searles, Herbert L., Ph. D., University of So. Calif., Los Angeles, Calif. (Psychology, Sociology.) (1930.)
Sears, O. H., Ph. D., 606 E. Chalmers St., Champaign, Ill. (Chemistry.) (1922.)
Segur, Mrs. Gertrude E., B. S., 331 E. Oak St., Watseka, Ill. (Biology.) (1931.)
Sekera, Vladimir C., B. S., 2634 Lawndale Ave., Chicago, Ill. (Chemistry.) (1930.)
Sellin, Hilding A., A. B., Outlook Sanitorium, Urbana, Ill. (Geology.) (1931.)
Selling, Lowell S., M. D., Ph. D., 907 S. Lincoln St., Chicago, Ill. (Psychiatry.) (1931.)
Sellmeyer, B. L., A. M., M. D., Loyola University, Chicago, Ill. (Biology.) (1931.)
Seward, Phillip F., 2007 30th St., Rock Island, Ill. (Geology.) (1930.)
Shalkhauser, E. G., A. B., 147 Cooper Ave., Peoria, Ill. (Radio Engineering.) (1931.)
Shallee, Roy M., M. S., Western Illinois State Teachers' College, Macomb, Ill. (Botany, Ornithology.) (1929.)
Shamel, Charles H., Ph. D., 802 Massachusetts Ave., N. E., Washington, D. C. (Physics, Engineering.) (1921.)
Shank, Marjorie M., M. A., 718 S. Normal, Carbondale, Ill. (Geography.) (1924.)
Shaw, Dorothy L., B. S., Methodist Hospital, Peoria, Ill. (Chemistry.) (1931.)
Shepard, F. P., Ph. D., University of Illinois, Urbana, Ill. (Geology.) (1930.)
Shepherd, V. D., B. Ed., 320 W. Nebraska St., Peoria, Ill. (General Science.) (1930.)
Sherretz, D. Ransom, B. Ed., M. A., Mid-Pacific Institute, Honolulu, Hawaii. (Zoology.) (1925.)
Shields, H. P., B. A., 522 Nowland, Peoria, Ill. (General Science.) (1930.)
Shock, Nathan Wetherill, Ph. D., University of Chicago, Chicago, Ill. (Biochemistry.) (1931.)
Shull, Charles A., Ph. D., University of Chicago, Chicago, Ill. (Botany, Plant Physiology.) (1924.)
Siebel, Emil A., 8 S. Dearborn St., Chicago, Ill. (Physics, Chemistry.) (1931.)
Simer, Dorr M., B. Ed., 1437 Lunt Ave., Chicago, Ill. (Chemistry.) (1928.)
Simer, Parke H., Ph. D., 303 E. Graham, Bloomington, Ill. (Zoology.) (1929.)
Simon, Clarence T., Ph. D., Northwestern University, Evanston, Ill. (Speech Pathology.) (1930.)
Simonds, Ossian Cole, 1101 Buena Ave., Chicago, Ill. (Botany.) (1920.)

Simons, Etolle B., Ph. D., 2721 E. 75th Place, Chicago, Ill. (Botany.) (1920.)
Simpson, Lowell V., A. M., Augustana College, Rock Island, Ill. (Psychology.) (1931.)
Simpson, Violet LaVera, 368 W. Lampkins, Galesburg, Ill. (Home Economics, Chemistry.) (1931.)
Singer, H. Douglas, M. D., University of Illinois, Medical School, Chicago, Ill. (Psychiatry.) (1920.)
Singleterry, Curtis R., M. S., Aurora College, Aurora, Ill. (Chemistry.) (1931.)
Sleight, Virgil G., M. S., 9 College Campus, Lake Forest, Ill. (Geology.) (1930.)
Slichenmeyer, H. L., B. S., B. Ed., Bloomington High School, Bloomington, Ill. (Chemistry.) (1930.)
Slye, Maud, B. A., 5836 Drexel Ave., Chicago, Ill. (Zoology.) (1921.)
Smetters, Samuel T., B. S., C. E., 1550 E. 61st St., Chicago, Ill. (Engineering.) (1930.)
Smisloff, Walter, 5008 Eddy St., Chicago, Ill. (Chemistry.) (1928.)
Smith, Arthur B., B. S., Automatic Electric Co., Chicago, Ill. (Telephony.) (1920.)
Smith, Arthur L., B. A., Eureka, Ill. (Biology.) (1927.)
Smith, Clarence R., M. S., Aurora College, Aurora, Ill. (Physics.) (1921.)
Smith, Erman S., B. S., Barrington, Ill. (Nature Study.) (1928.)
Smith, George H., Ph. D., 1925 Central Ave., Indianapolis, Ind. (Botany.) (1921.)
Smith, Grant, Ph. D., 6753 Chappell Ave., Chicago, Ill. (Zoology.) (1921.)
Smith, Guy N., B. S., R. R. No. 9, Rockford, Ill. (Botany.) (1925.)
Smith, Keith K., Ph. D., Northwestern University, Evanston, Ill. (Physics.) (1916.)
Smith, Kenneth P., B. Ed., 102 E. Cherry, Normal, Ill. (Biology, Chemistry.) (1930.)
Smith, L. S., M. A., Illinois State Normal University, Normal, Ill. (Physics.) (1931.)
Smith, Oakley, D. N., 159 N. State St., Chicago, Ill. (Anthropology.) (1931.)
Smith, Raymond S., Ph. D., University of Illinois, Urbana, Ill. (Chemistry, Physics of Soil.) (1920.)
Smithies, Frank, M. D., Sc. D., 920 N. Michigan Ave., Chicago, Ill. (Biology, Physics.) (1930.)
Sneller, Charles D., M. D., 319 Jefferson Bldg., Peoria, Ill. (Paleontology.) (1930.)
Snider, Alvin B., M. D., Blue Island, Ill. (Medicine.) (1921.)
Snider, H. J., B. S., University of Illinois, Urbana, Ill. (Soils, Agriculture.) (1921.)
Solheim, Wilhelm G., Ph. D., University of Wyoming. (Botany.) (1927.)
Sommer, Joseph B., B .S., Peoria High School, Peoria, Ill. (Biology.) (1929.)
Sonnenschein, Robert, M. D., 4518 Woodlawn Ave., Chicago, Ill. (Medicine.) (1920.)
Sotier, Alfred L., M. S., 550 Pine St., Chillicothe, Ill. (Bacteriology.) (1931.)
Spencer, E. R., Ph. D., Lebanon, Ill. (Plant Pathology.) (1930.)
Sperry, Theodore M., Room 400, Natural History Bldg., Urbana, Ill. (Botany.) (1930.)
Spooner, Charles S., M. A., 1436 Seventh St., Charleston, Ill. (Zoology.) (1920.)
Springer, Lura L., A. M., Alderson Junior College, Alderson, W. Va. (Botany.) (1930.)
Stabin, George W., M. D., First National Bank Bldg., Springfield, Ill. (Medicine.) (1925.)
Stage, James F., 1037 Wilkenson St., Alton, Ill. (General Science.) (1930.)
Stanislaus, Sister M., Ph. B., 118 N. Central Ave., Chicago, Ill. (Biology.) (1931.)
Stansfield, John, Ph. D., 902 W. Illinois St., Urbana, Ill. (Geology.) (1924.)
Stark, John T., Ph. D., 900 Greenwood Blvd., Evanston, Ill. (Geology.) (1925.)
Stauffer, Andrew, M. S., 680 Prairie Ave., Glen Ellyn, Ill. (Botany.) (1928.)
Steagall, Mary M., Ph. D., 808 S. Illinois Ave., Carbondale, Ill. (Botany.) (1921.)
Steele, Frank J., Ph. G., R. P., Box 9112, Bloomfield, Pittsburg, Pa. (Medicine.) (1931.)
Stein, Hilda Anna, B. Ed., Southern Illinois State Teachers' College, Carbondale, Ill. (Zoology.) (1926.)
Steinhaus, Arthur H., Ph. D., 5315 Drexel Ave., Chicago, Ill. (Zoology.) (1930.)
Stephens, M. H., 237 W. Gift, Peoria, Ill. (Chemistry.) (1931.)
Stericker, George B., M. D., First National Bank Bldg., Springfield, Ill. (Medicine.) (1929.)
Stevens, Frank L., Ph. D., 706 S. Coler Ave., Urbana, Ill. (Plant Pathology.) (1914.)
Stieglitz, Julius, Ph. D., D. Sc., Chem. D., University of Chicago, Chicago, Ill. (Chemistry.) (1931.)
Stillians, Arthur W., M. D., 911 E. 50th St., Chicago, Ill. (Medicine.) (1921.)
Stout, Gilbert L., M. A., State Department of Agriculture, Sacramento, Calif. (Botany.) (1927.)
Stover, Ernest L., Ph. D., Eastern Illinois State Teachers' College, Charleston, Ill. (Botany.) (1924.)
Stover, Mrs. Ernest L., M. S., Eastern Illinois State Teachers' College, Charleston, Ill. (Botany.) (1924.)
Strohecker, Mae, B. S., 409 S. Church, Gibson City, Ill. (Biology.) (1931.)
Strong, Harriett, M. S., 702 Maple Ave., Downers Grove, Ill. (Biology.) (1917.)
Struble, R. H., B. A., 4481 Sheridan Ave., Detroit, Mich. (Physics.) (1921.)
Sturm, Kathryn, B. Ed., Pittsburg, Ill. (Zoology.) (1927.)
Sutton, Arie H., Ph. D., University of Illinois, Urbana, Ill. (Geology.) (1931.)
Swan, W. S., M. D., Cor. Main and Walnut Sts., Harrisburg, Ill. (Medicine.) (1921.)
Swanberg, Harold, M. D., 510 Maine St., Quincy, Ill. (Medicine.) (1930.)
Swanberg, Roy M., A. B., Little York, Ill. (Geology.) (1930.)
Swanson, A. M., M. S., M. D., 503 7th St., Rockford, Ill. (Medicine.) (1931.)
Swanson, Caroline H., B. S., 7816 Cregier Ave., Chicago, Ill. (Botany.) (1930.)
Sweet, Donald H., A. B., B. S., LL. B., 10 S. LaSalle St., Chicago, Ill. (Physics.) (1931.)
Swope, Gladys, B. S., 845 S. Wabash Ave., Chicago, Ill. (Chemistry.) (1930.)
Sylvester, Frank M., M. D., 1135 Madison St. Oak Park, Ill. (Anthropology. (1931.)

Symons, George E., M. S., State Water Survey, Urbana, Ill. (Chemistry, Bacteriology.) (1931.)

T

Tanner, Fred W., Ph. D., University of Illinois, Urbana, Ill. (Bacteriology.) (1931.)
Tanner, W. Lee, Panasoffkee, Fla. (Chemistry.) (1930.)
Tauber, Oscar E., 1129 E. Main St., Decatur, Ill. (Biology.) (1930.)
Taylor, Alice Lundgren, 6241 N. Winthrop Ave., Chicago, Ill. (Geology.) (1929.)
Taylor, David O., B. S., 6241 N. Winthrop Ave., Chicago, Ill. (Geology.) (1929.)
Terwilliger, George L., B. Ed., 330 College Ave., DeKalb, Ill. (Biology.) (1926.)
Teuscher, Heinrich, M. D., Boyce Thompson Institute, Yonkers, N. Y. (Botany.) (1928.)
Thayer, Thomas P., A. B., 1812 Hinman Ave., Evanston, Ill. (Geology.) (1930.)
Thiessen, Garrett W., Ph. D., Monmouth College, Monmouth, Ill. (Chemistry.) (1931.)
Thomas, Gertrude M., 1003 N. Court St., Rockford, Ill. (Biology.) (1924.)
Thomas, Lyell J., Ph. D., University of Illinois, Urbana, Ill. (Zoology, Parasitology.) (1923.)
Thompson, Clem O., A. M., School of Education, University of Chicago, Chicago, Ill. (Zoology, Psychology.) (1931.)
Thompson, David H., Ph. D., Natural History Survey, Urbana, Ill. (Biology.) (1930.)
Thornberry, H. H., M. S., University of Illinois, Urbana, Ill. (Plant Pathology.) (1930.)
Thurlimann, Leota, 5143 Kenwood Ave., Chicago, Ill (General Science.) (1921.)
Thurston, Fredus A., D. D. S., 1361 E. 57th St., Chicago, Ill. (Medicine.) (1921.)
Tiffany, L. Hanford, Ph. D., Ohio State University, Columbus, Ohio. (Botany.) (1914.)
Tilbury, W. G., 310 S. Race St., Urbana, Ill. (Biology.) (1929.)
Tillman, Arthur G., Ph. D., Western Illinois State Teachers' College, Macomb, Ill. (Geography, Geology.) (1929.)
Tjaden, John C., R. R. 7, Peoria, Ill. (Geology.) (1931.)
Townsend, Lee H., B. S., University of Illinois, Urbana, Ill. (Entomology.) (1930.)
Townsend, M. T., Ph. D., Illinois Wesleyan University, Bloomington, Ill. (Zoology.) (1931.)
Townsley, Fred, B. A., James Millikin University, Decatur, Ill. (General Science.) (1916.)
Tracy, Barbara, M. A., 900 S. 5th St., Springfield, Ill. (Biology.) (1930.)
Trieschmann, J. E., A. M., 15535 Myrtle Ave., Harvey, Ill. (Chemistry.) (1931.)
Trimble, O. C., Bradley Polytechnic Institute, Peoria, Ill. (Psychology.) (1930.)
Tubbs, F. D., 809 W. California St., Urbana, Ill. (Geology.) (1930.)
Tumpeer, Isidor H., S. M., M. D., 310 S. Michigan Ave., Chicago, Ill. (Biology, Medicine.) (1931.)
Tunnicliff, Ruth, M. D., 637 S. Wood St., Chicago, Ill. (Medicine.) (1928.)
Turner, Lewis M., M. S., University of Arkansas, Fayetteville, Ark. (Botany.) (1925.)
Turrell, F. M., B. E., Sorento, Ill. (Biology.) (1930.)
Tykociner, J. T., E. E., University of Illinois, Urbana, Ill. (Physics, Electrical Engineering.) (1930.)
Tyler, Rayen W., M. A., 705 W. Nevada St., Urbana, Ill. (Physics.) (1928.)

U

Ulrich, Katharine, Ph. D., 305 N. Oak Park Ave., Oak Park, Ill. (Geology, Botany, Geography.) (1921.)

V

Van Buren, Bruce, A. B., 508 15th Ave., Moline, Ill. (Geology.) (1930.)
Van Heeden, Arthur, LL. B., 817 E. 46th St., Chicago, Ill. (Physics, Engineering.) (1931.)
Van Hoosen, Bertha, M. D., 25 E. Washington St., Chicago, Ill. (Medicine.) (1927.)
Van Tuyl, Francis M., Ph. D., Colorado School of Mines, Golden, Colo. (Geology.) (1916.)
Van Velzer, C. A., Ph. D., Carthage College, Carthage, Ill. (Mathematics, Physics, Astronomy.)
Verda, D. Joseph, A. M., 403 Natural History Bldg., Urbana, Ill. (Zoology.) (1930.)
Vestal, A. G., Ph. D., University of Illinois, Urbana, Ill. (Ecology.) (1910.)
Victor, Brother, C. S. C., 1110 Noble St., Chicago, Ill. (Mineralogy.) (1931.)
Voss, John, B. Ed., 200 Dixon Ave., Peoria, Ill. (Biology.) (1928.)
Vraz, Victor E., M. B. A., School of Business Administration, University of Texas, Austin, Texas. (Economics.) (1930.)

W

Waggoner, Harry D., Ph. D., 313 Sherman Ave., Macomb, Ill. (Biology.) (1929.)
Wagner, Carl B., M. D., 30 N. Michigan Ave., Box 2, Chicago, Ill. (Astronomy.) (1930.)
Wagner, H. A., E. M., Ph. D., 8 S. Michigan Ave., Chicago, Ill. (Chemistry.) (1931.)
Wagner, Oscar E., Jr., M. A., 3857 N. Hermitage Ave., Chicago, Ill. (Geology.) (1931.)

Walcott, Albert J., Ph. D., Northwestern University, Evanston, Ill. (Mineralogy.) (1931.)
Walker, William H., M. D., University of Illinois, College of Medicine, 1817 W. Polk St., Chicago, Ill. (Biology, Chemistry.) (1920.)
Walsh, John, Box 212, Galesburg, Ill. (Water Supply). (1921.)
Walz, Louis G., A. M., Temple University, Philadelphia, Pa. (Zoology.) (1930.)
Wanless, Harold R., Ph. D., University of Illinois, Urbana, Ill. (Geology.) (1924.)
Warbrick, John C., M. D., 306 E. 43rd St., Chicago, Ill. (Ornithology, Nature Study.) (1920.)
Ward, Elizabeth Erb, M. S., 2314 Sherman Ave., Evanston, Ill. (Geology.) (1931.)
Ward, Harold B., B S.., Northwestern University, Evanston, Ill. (Geography, Geology.) (1910.)
Warner, Glen W., M. A., 7633 Calumet Ave., Chicago, Ill. (Physics.) (1927.)
Waterman, Warren G., Ph. D., 2018 Orrington Ave., Evanston, Ill. (Botany.) (1914.)
Watson, Floyd R., Ph. D., 705 S. Lincoln Ave., Urbana, Ill. (Physics.) (1909.)
Watson, J. M., 2316 W. 110th St., Chicago, Ill. (Astronomy, Chemistry.) (1930.)
Watson, Josiah S., M. S., Indiana St. and Adella Ave., Joliet, Ill. (Zoology, Botany.) (1927.)
Watson, Thomas A., 1156 N. Crawford Ave., Chicago, Ill. (Psychology.) (1931.)
Watt, Lois, Goodfield, Ill. (Psychology.) (1930.)
Watts, J. T., Box No. 15, Oak Park, Ill. (Astronomy.) (1930.)
Waugh, Anna, A. B., 6620 Yale Ave., Chicago, Ill. (Botany.) (1927.)
Way, Harold E., M. S., 284 N. Academy, Galesburg, Ill. (Physics.) (1929.)
Weatherwax, Paul, Ph. D., 416 S. Dunn St., Bloomington, Ind. (Botany.) (1928.)
Weaver, George H., M. D., Rush Medical College, Chicago, Ill. (Medicine, Bacteriology.) (1920.)
Weber, H. C., Ph. D., Westinghouse Electric Co., Pittsburg, Pa. (Chemistry.) (1914.)
Weckel, Ada Louise, M. S., 437 Erie St., Oak Park, Ill. (Zoology.) (1917.)
Weese, Asa O., Ph. D., University of Oklahoma, Norman, Okla. (Animal Ecology.) (1924.)
Welch, M. W., B. S., L. S. D., 857 Greenwood Ave., Glencoe, Ill. (Biochemistry.) (1931.)
Welch, Winona H., Ph. D., DePauw University, Greencastle, Ind. (Botany.) (1930.)
Weller, J. Marvin, Ph. D., State Geological Survey, Urbana. (Geology.) (1926.)
Wentworth, Edward N., M. S., Armour's Bureau of Agricultural Research and Economics, Chicago, Ill. (Genetics, Economics.) (1922.)
Wenzelmann, Gus S., 280 S. Cedar St., Galesburg, Ill. (Therapy.) (1928.)
Werckle, Carol A., 222 N. Garfield, Peoria, Ill. (Physics.) (1931.)
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White, J. Kay, 1419 Thacker St., Milledgeville, Ill. (Geology.) (1926.)
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Whitney, Worallo, M. A., 5743 Dorchester Ave., Chicago, Ill. (1910.)
Wicker, Enos, 2831 8th Ave., Moline, Ill. (Physics.) (1930.)
Wickwire, George C., M. S., University of Illinois, Urbana, Ill. (Physiology.) (1927.)
Wieman, Henry N., Ph. D., University of Chicago, Chicago, Ill. (Psychology.) (1930.)
Williams, E. H., Ph. D., 804 Michigan Ave., Urbana, Ill. (Physics.) (1925.)
Williams, Marian F., 1406 E. 56th St., Chicago, Ill. (Library Science.) (1929.)
Williams, Pauline, B. S., 226 S. 19th St., Murphysboro, Ill. (Biology.) (1926.)
Willier, Benjamin H., Ph. D., University of Chicago, Chicago, Ill. (Zoology.) (1921.)
Willman, H. B., Ph. D., 305 Ceramics Bldg., Urbana, Ill. (Geology.) (1925.)
Wilson, Albert H., M. S., 41 S. 17th St., Richmond, Ind. (Botany.) (1928.)
Windoes, Fred C., A. B., 2305 Hartrey Ave., Evanston, Ill. (Physics.) (1931.)
Witt, J. C., Ph. D., 5834 Stony Island Ave., Chicago, Ill. (Chemistry.) (1923.)
Witzmann, Edgar J., Ph. D., University of Wisconsin, Madison, Wis. (Chemistry.) (1920.)
Woodbury, William W., 711 N. Main St., Sandwich, Ill. (Physics.) (1931.)
Woodrow, Herbert, Ph. D., University of Illinois, Urbana, Ill. (Psychology.) (1930.)
Woods, Ruth, B. S., Senior High School, Springfield, Ill. (Botany.) (1928.)
Woodworth, C. M., Ph. D., University of Illinois, Urbana, Ill. (Plant Breeding.) (1930.)
Woodworth, M. E., Pittsfield, Ill. (Chemistry.) (1929.)
Workman, L. E., M. A., State Geological Survey, Urbana, Ill. (Geology.) (1926.)
Worsham, Walter B., B. A., 403 W. Monroe St., Springfield, Ill. (Physics.) (1924.)
Wray, J. G., Bankers Bldg., Chicago, Ill. (Physics.) (1930.)
Wright, Frank, M. D., 55 E. Washington St., Chicago, Ill. (Biological Chemistry. (1920.)
Wright, L. K., B. Ed., Bloomington High School, Bloomington, Ill. (Botany.) (1930.)
Wright, Lorin O., B. S., 705 Darst St., Eureka, Ill. (Biology.) (1930.)
Wright, Mrs. Maurie, M. A., Beloit College, Beloit, Wis. (Botany.) (1927.)
Wright, Paul R., A. B., care of Daily News, Chicago, Ill. (Geology.) (1924.)
Wynne, Ross B., B. A., 7355 Kenwood Ave., Chicago, Ill. (Botany.) (1920.)

Y

Yingling, Hal C., M. Sc., Augustana College, Rock Island, Ill. (Biology.) (1930.)
Yntema, L. F., M. D., 1402 S. Grand Blvd., St. Louis, Mo. (Chemistry, Medicine.) (1931.)

Young, Mrs. J. D., M. S., Windermere Hotel, 56th and Cornell Ave., Chicago, Ill. (Zoology.) (1911.)
Young, Otis B., Ph. D., Southern Illinois Normal University, Carbondale, Ill. (Physics.) (1931.)

Z

Zimmermann, Arnold A., D. Sc., University of Illinois, College of Medicine, 1817 W. Polk St., Chicago, Ill. (Embryology.) (1931.)
Zimmerschied, Charlotte, M. A., 808 S. Illinois Ave., Carbondale, Ill. (Physics.) (1926.)

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Illinois Nature Study Society of Elgin, Carl F. Gronemann, Pres., 310 N. Liberty St., Elgin, Ill. (1924.)
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Normal Science Club, Illinois State Normal University, care of Bessie I. Hibarger, Treas., 200 W. Mulberry St., Normal, Ill. (1923.)
Peoria Academy of Science, Arthur L. Epstein, Pres., Peoria, Ill. (1930.)
Rockford Nature Study Society, care of Miss F. S. Dobson, 312 N. Avon St., Rockford, Ill. (1923.)
Sigma Xi, University of Chicago Chapter, care of Geo. D. Fuller, University of Chicago, Chicago, Ill. (1925.)
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Sigma Zeta Society, care of Prof. R. K. Carleton, Shurtleff College, Alton, Ill. (1929.)
Southern Illinois Science Club, Southern Illinois State Teachers' College, Carbondale, Ill. (1926.)
Theta Chi Delta, Alpha Eta Chapter, Carthage College, Carthage, Ill. (Chemistry) (1929).

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Casey Science Club, Casey, Ill. (1931.)
Champaign Science Club, Champaign, Ill. (1931.)
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Carter H. Harrison Technical High School Biology Club, Chicago, Ill. (1930.)
Danville Science Club, Danville High School, Danville, Ill. (1923.)
Dixon High School, Biology Club, Dixon, Ill.
Dupo Community High School Nature Club, Dupo, Ill. (1931.)
East St. Louis High School, Chemistry Club, East St. Louis, Ill. (1930.)
Edisonian Science Club, Henry, Ill. (1926.)
Edisonian Science Club, Robinson, Ill. (1930.)
Edisonian Science Club, Roosevelt Jr. High School, Rockford, Ill. (1930.)
Edisonian Science Club, West Chicago Community High School, West Chicago, Ill. (1928.)
Englewood Biology Club, Englewood High School, Chicago, Ill. (1925.)
Faraday Science Club, Wendell Phillips Sr. High School, Chicago, Ill. (1930.)
Franklin Science Club, Marion, Ill. (1931.)

Galesburg High School, Boys' Science Club, Galesburg, Ill. (1922.)
Geneseo Club, Geneseo Township High School, Geneseo, Ill. (1931.)
Gibson City Science Club, Gibson City, Ill. (1931.)
Gillespie High School Science Club, Gillespie, Ill. (1931.)
Glenbard Science Club, Glenbard High School, Glen Ellyn, Ill. (1930.)
Granite City Community High School, Chemistry Club, Granite City, Ill. (1930.)
Granite City Community High School Vocational Science Club, Granite City, Ill. (1930.)
Hall Township High School Science Club, Spring Valley, Ill. (1931.)
Illinium Science Club, Paris High School, Paris, Ill. (1930.)
Lincoln Chemistry Club, Lincoln Junior High School, Rockford, Ill. (1931.)
Maine Chemistry Club, Des Plaines, Ill. (1930.)
Metamora Township High School Chemistry Club, Metamora, Ill. (1931.)
Modern Alchemists Club, Bloomington, Ill. (1930.)
Mote Scientifique, Hononegah Community High School, Rockton, Ill. (1931.)
Morgan Park High School Science Club, Chicago, Ill. (1930.)
Mt. Pulaski Science Club, Pulaski Township High School, Mt. Pulaski, Ill. (1929.)
Newman Township High School Science Club, "The Chem 12", Newman, Ill. (1931.)
New Trier Geology Club, New Trier High School, Winnetka, Ill. (1931.)
New Trier Ornithology Club, New Trier High School, Winnetka, Ill. (1931.)
Nokomis High School Science Club, Nokomis, Ill. (1930.)
Parker Science Club, Parker Senior High School, Chicago, Ill. (1930.)
Pasteur Chemistry Club, Robinson Township High School, Robinson, Ill. (1929.)
Pekin High School Science Club, Pekin, Ill. (1931.)
Peoria High School Science and Mathematics Club, Peoria, Ill. (1931.)
Rockford Senior High School Biology Club, Rockford, Ill. (1930.)
Rockford High School Chemistry Club, Rockford, Ill. (1930.)
Rockford High School Psychology Club, Rockford, Ill. (1930.)
Springfield High School Science Club, Springfield, Ill. (1931.)
Sienna High School Science Club, 5600 Washington Blvd., Chicago, Ill. (1931.)
University High Science Club, University of Illinois High School, Urbana, Ill. (1930.)
Villa Grove High School Science Club, Villa Grove, Ill. (1930.)
Volta Club, Visitation High School, 900 W. Garfield Blvd., Chicago, Ill. (1931.)
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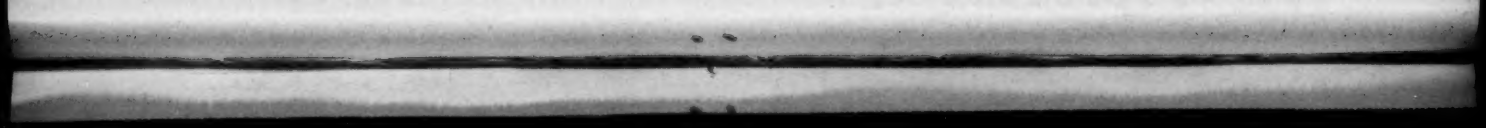
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